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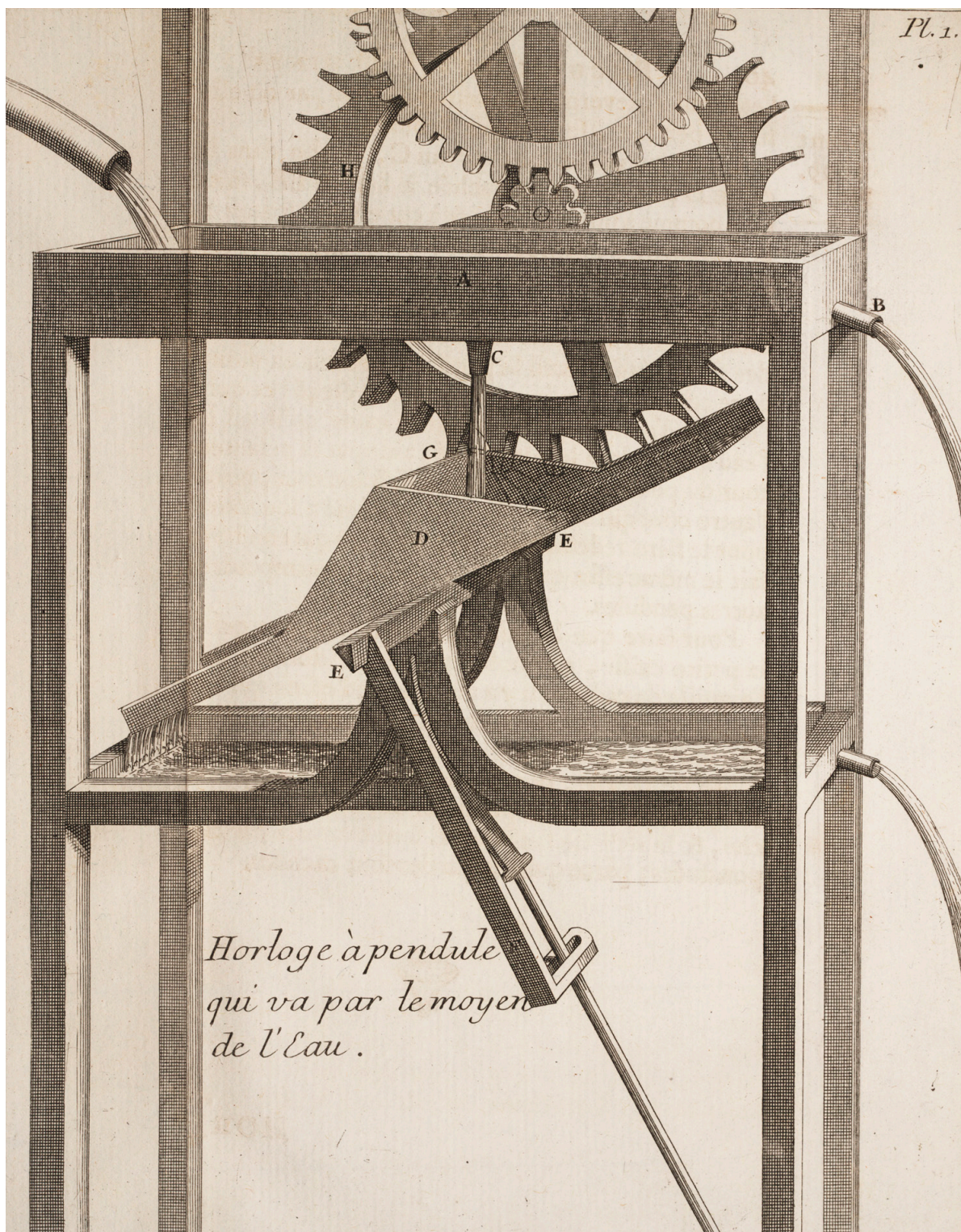
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SciTech News

The Official Bulletin for the Chemistry, Engineering, and Science-Technology Divisions and the Aerospace Section of the Engineering Division and the Materials Research and Manufacturing Section of the Chemistry Division of the Special Libraries Association

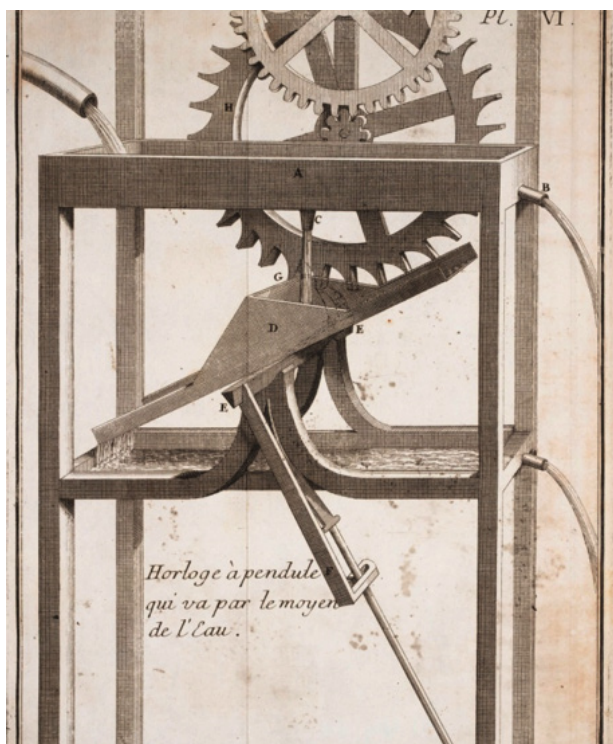


Volume 66, Number 3 (2012)
ISSN 0036-8059

SciTech News



On the Cover



Claude Perrault was a founding member of the Académie des Sciences in Paris who is best known as an anatomist. He worked on problems of mechanical engineering as well. A collection of his designs was posthumously published by his brother, the fairytale writer Charles Perrault in 1700, as *Recueil de plusieurs machines, de nouvelle*. It includes this design for a water-powered pendulum clock that dates to about 1669, when Perrault sent plans for the clock to Christiaan Huygens, who apparently never replied. It could have worked, but it would have served no practical purpose, given the comparative portability and other advantages of mechanical clocks driven by weights and springs. (Image and caption courtesy the Linda Hall Library of Science, Engineering & Technology.)

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Copy Deadline

Issue Number 1	Feb 1
Issue Number 2	April 1
Issue Number 3	Aug 1
Issue Number 4	Nov 1

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From the Editor

Abby Thorne



I hope everyone has had an enjoyable summer and, for our academic members, a great start to the fall semester!

The end of summer means that Annual Conference is over. I was unable to attend this year because I had my first child in late May, but from everything I've heard and read online, the Annual Conference was a great success. According to the official press release, a total of 3,473 information professionals and vendor representatives attended and full conference registration was 20% higher than last year. The conference featured over 250 sessions and over 200 vendors. Our contributing divisions and sections provided attendees with lots of great sessions—some of which you'll find detailed in the pages to follow. I encourage you to check out the session summaries that your fellow SLA members so helpfully provided.

Now that Annual Conference is over, it's also time for elections—both for your divisions and sections and for the SLA Board of Directors. I

highly encourage you to be on the lookout for information about the candidates for all of SLA's elections, research the candidates, and, most importantly, VOTE! SLA depends on you to help choose its leaders and your vote is important in that process!

As we head toward the final issue of the year, I would like to encourage you to consider submitting an article to SciTech News. We are still soliciting submissions for the peer-reviewed section, but I am happy to consider other articles for publication, including reports about grant projects, library renovations, and new programs/services your library or information center is offering. If you are interested in submitting an article, please email me at abby.thorne@gmail.com.

Happy fall, everyone!❖

Abby Thorne
abby.thorne@gmail.com

SciTech News Call for Articles!

SciTech News is looking for a few good authors!

If you have a research project, a new service in your library, a new instructional method, or other information you'd like to share with your colleagues, please consider writing for *SciTech News*. In addition to the regular articles, we now have a refereed section. Colleagues will review your article and provide feedback. Accepted articles will be published in the new electronic *SciTech News*. This is an excellent venue to get your research and ideas out to a group of interested readers and get that important refereed article for your dossier or annual review.

For additional information, contact Editor Abby Thorne (abby.thorne@gmail.com) or Review Board Chair Bonnie Osif (bao2@psu.edu). Articles for the refereed section may be submitted to the Review Board Chair at bao2@psu.edu.

2012 SLA Annual Conference Program Summaries

The Science of Beauty Care

Submitted by Vivienne Houghton

Program Title: The Science of Beauty Care

Speaker: Patricia Aikens, PhD, Technical Services Manager, BASF Beauty Care Ingredients

Contact: patricia.aikens@basf.com

Bio: Patricia Aikens received a BS in Chemistry from Rensselaer Polytechnic Institute in Troy, NY and a PhD in organic and colloid chemistry from Emory University in Atlanta, GA. She has done postdoctoral work at Lehigh University in the area of lipid vesicles and membrane transport. Patricia has worked in the cosmetics industry for over 15 years in the area of surfactant research and formulation development. The past 10 years has been in technical service for raw materials in skin-care and sunscreens.

Presented by: Chemistry Division, Food Agriculture & Nutrition Division, Science & Technology Division

Sponsored by: ASTM International

Brief Summary

Overview

Patricia Aikens began her talk with an overview of the structure of the cosmetic industry as composed of "suppliers" (e.g. BASF, Ashland Chemical, International Flavor and Fragrance), who sell raw materials to finished goods companies called "customers" (P&G, Avon, Johnson & Johnson, L'Oreal, Colgate, Estee Lauder, Revlon, private label), who then sell to the end consumer (the public). In between the consumer and cosmetic company are the "distributors" (Walmart, CVS, Avon Rep, Macy's, internet sites, etc.)

Regulations

The FDA regulates some personal care products, including those with over-the-counter (OTC) drug active ingredients (sunscreens, antiperspirant, anti-acne, fluoride toothpaste and topical antibiotics) and those with colors (pigments and dyes.) All raw materials are listed on the labels of cosmetic products. OTC drugs require an INCI name (International Nomenclature of Cosmetic Ingredients) as assigned by the Personal Care Products Council (PCPC) and listed in the INCI Dictionary.

Science

The cosmetics industry involves five key areas of science: surface and colloid chemistry (emulsifiers, dispersants, detergents for cleansing), organic chemistry (active ingredients, fragrances), polymer chemistry (products requiring rheology modifiers or used as film formers), skin physiology and biochemistry, and test methodology/clinical evaluations.

Hair

Does your hair conditioner claim to make your lovely tresses noticeably thicker, fuller, sleeker and shinier? Typical, yet extensive, testing is done to substantiate such claims, including: styling evaluation, stiffness, combing, flaking, volume, shine, tactile properties, spray patterns and optimization, thermal protection and characterization of thermal and mechanical damage, curl retention, humidity tolerance, foamability and color retention. Do the hair testing companies use real hair for the tests? Yes!

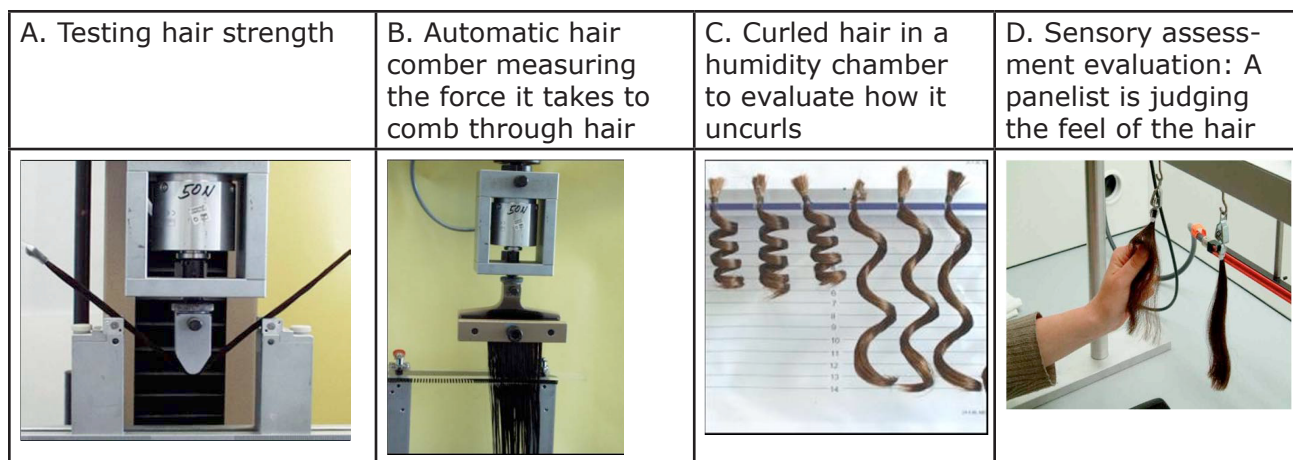


Figure 1. Machines used to evaluate and substantiate claims of hair styling performance
Sunscreen

Why do sunscreen aerosol sprays feel so much better on your skin than the thick, white sunscreen lotions? The sprays are ethanol-based and feel cool when sprayed on your skin on a hot day. What does SPF mean? It indicates the level of protection from sunburn from harmful UVB radiation.

The active ingredients in sunscreens are UV filters. The FDA has a sunscreen monograph listing 16 approved ingredients, of which only six or seven are typically used. The monograph also outlines ingredient usage levels, claim substantiation, dosage forms, and labeling requirements. This monograph is currently being revised and is undergoing approval. The new monograph covers: broad spectrum SPF + UVA protection claims (ratio of each), testing method for SPF and UVA (in-vitro or in-vivo), photostability, water resistance claims, anti-aging and cancer prevention, and SPF maximum.

Skin care products

This segment includes 1) facial skin care products for moisturization, anti-aging (usually with SPF), anti-acne (OTC), and skin lightening; and 2) body care products for general moisturization and niche products for enhancers such as anti-cellulite.

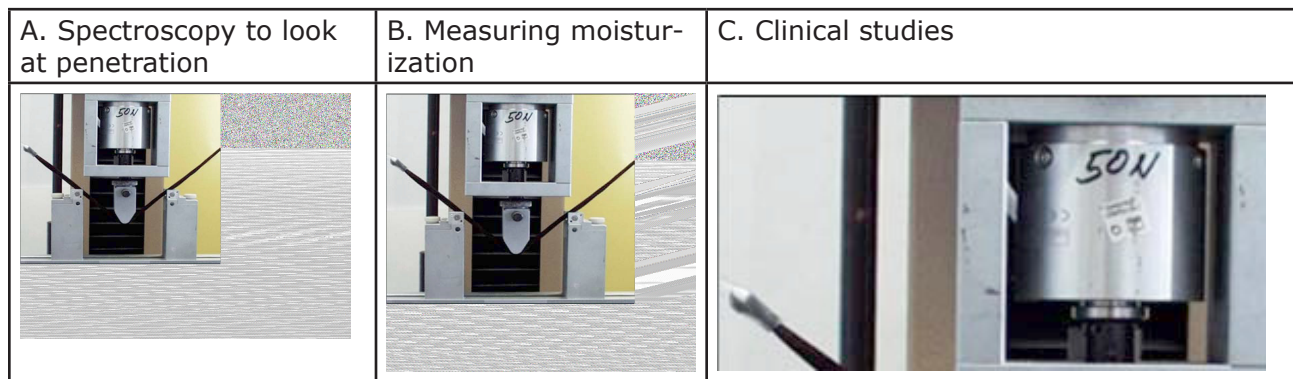


Figure 2. Testing methods for skin care
"Cosmeceuticals"

Consumers spend billions on products, which claim to make them look younger. One of the largest segments is "anti-aging" or the treatment of photoaging with ingredients such as retinoic acid (FDA approved prescription drug) and cosmetic ingredients such as retinol and derivatives, hyaluronic acid, lipids, antioxidants, vitamin C, extracts, etc. At times, there can be an unclear division between what is claimed as cosmetic or pharmaceutical. Are the claims being made on "cosmetic" or OTC products? There needs to be very careful consideration to claims made.

Dr. Aikens also discussed the chemistry behind color cosmetics and personal care products: toothpaste, mouthwash, antiperspirants/deodorants, shaving products, soap, bath and shower cleansing products, fragrance, and depilatories. ❖

How and Why Things Fail

Submitted by Vivienne Houghton

Program Title: How and Why Things Fail - Forensic Engineers and Information Specialists

Sponsored by: Inspec Inc., ProQuest & Dialog, Springer

Speaker: Michael E. Stevenson, Ph.D., P.E. President, Principal & Chief Executive Officer at Engineering Systems, Inc. (ESI)

Contact: mestevenson@esi-atl.com
<http://www.esi-website.com>

Bio: B.S. and M.S., Metallurgical and Materials Engineering, University of Alabama; Ph.D., Metallurgical Engineering, University of Alabama. Registered P.E. in Alabama and Georgia. Industrial Advisory Board, University of Alabama Department of Aerospace Engineering and Mechanics. Member of ASM, ASME, ASNT, ASTM, AWS, IMS, NACE and TMS. Numerous technical presentations and publications. Specializes in failure analysis, material and mechanical testing, mechanics, corrosion, metallurgy, testing and inspections.

Brief Summary

Dr. Michael Stevenson spoke about the critical role of the information group at ESI, the engineering investigation firm for which he is the President, Principal and CEO. The moderator for this presentation was Cheryl Hansen, Chair of SLA's Science & Technology Division and engineering research librarian at ESI. Cheryl is a solo librarian who takes care of the research and reference needs of ESI's engineers located around the country.

ESI deals with failure analysis and forensic investigation. However, whereas the television show CSI can solve cases in 45 minutes, Dr. Stevenson points out that real life investigations, especially federal investigations, usually take several years.

Often, the metallic evidence is all that is left after a disaster. It takes an incredible amount of background data for the information group to unravel the mayhem and reconstruct past events. They need to separate fact from fiction so that the physical evidence can tell its story. The faster and more coherently information can be processed into knowledge, the more precise the investigation can be. Experts disagree when there is poor information, such as many subjective opinions, little objective information and limited literature. The experts with the most access to the best information that is based on scientific methods can have the best case.

ESI's investigations are based on the scientific method where they identify the problem, define the problem, collect data, analyze data, develop the hypothesis, test the hypothesis, and select the final hypothesis. The questions that the engineers ask are: What happened first or what "broke" first? Did it fail all at once or over time? If it failed all at once, then which was greater, the load or the capacity? If it broke over time, then what were the mechanisms and environment?

Sources of data in investigations include:

- 1) The physical evidence aka "the thing"
- 2) Witnesses
- 3) Industry literature
- 4) Standards

- 5) Scientific literature
- 6) Specifications and drawings
- 7) Patents

Dr. Stevenson emphasized that although the “face value” of the evidence can be deceptive or difficult to understand, the physical evidence never lies. And that “the key to the most successful investigation isn’t the lab, it’s the library.” That is, “information specialists drive the failure analysis business.”

Dr. Stevenson is the Editor of the Journal of Failure Analysis and Prevention. He noted how the journal is now republishing old articles since failure analysis issues are now arising in China where so much manufacturing has been done.

Dr. Stevenson went over several case studies during his presentation including an alleged electrical fire in a mobile home and a motorcycle accident involving fray and corrosion. Detailed descriptions and photos of nine case studies are available on ESI’s website (<http://www.esi-website.com/projects/index.php>), including United Airlines Flight 232, New Orleans Super Dome, a train derailment in a Baltimore tunnel and a Porsche Carrera GT accident. ❖

Computer Science Roundtable

Submitted by Vivienne Houghton

Program Title: Computer Science Roundtable

Presented by: Physics-Astronomy-Mathematics Division, Science-Technology Division

Sponsored by: Morgan & Claypool Publishers

Speaker: Michael Habib, MSLS, Product Manager, Scopus

Slides: Application Platforms and Developer Communities – New software tools and apps to support the research workflow

Link to slides: <http://www.slideshare.net/habibmi>

Contact: habib@elsevier.com

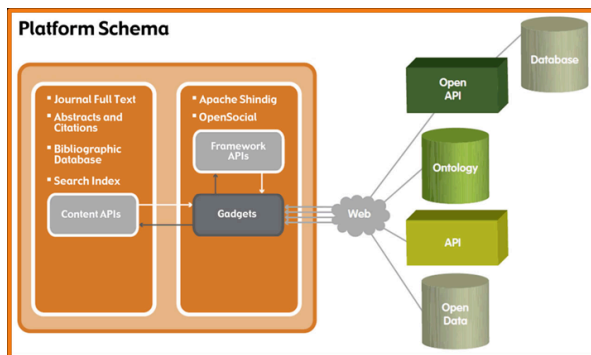
Twitter: @habib

Bio: Michael Habib is a Product Manager at Elsevier. He holds a MS in Library Science from the School of Information and Library Science at UNC-Chapel Hill. Habib is a member of the Scopus team where he focuses on streamlining the scholarly literature research workflow through enhanced search/browse experiences, tight cross-product integrations, accurate author profiling and improved mobile access. He previously held roles in such varied institutions as a public library, academic libraries, and a print-on-demand publisher.

Brief Summary

Michael Habib presented on Elsevier’s developer portal, SciVerse Applications, which is a marketplace that allows researchers to build, find and use applications to improve search and discovery within the SciVerse Product Suite: ScienceDirect, Scopus and Hub. Applications are also known as apps, gadgets or extensions. Elsevier provides a variety of tools to assist in building apps including Framework APIs for integrating with the SciVerse Application Platform and content APIs for search & retrieval of SciVerse data.

There is a huge mass of data available to researchers outside formal literature. Much of this data is of high importance but is not easily accessible. Smart apps help make this data more accessible. Apps also facilitate interoperability and bring relevant data into context. SciVerse Applications’ open platform allows the



research community to build the tools they need. APIs and an open platform bring SciVerse to where users are and let other products add value to SciVerse. Hundreds of developers have participated in numerous challenges including the Elsevier Hackathon and Apps for Science. As of August 2012, there were 134 applications in the app gallery.

Speaker: Ellen Rotenberg, Senior Manager, Product Innovation, IP & Science, Thomson Reuters

Slides: New Tools for the Research Workflow

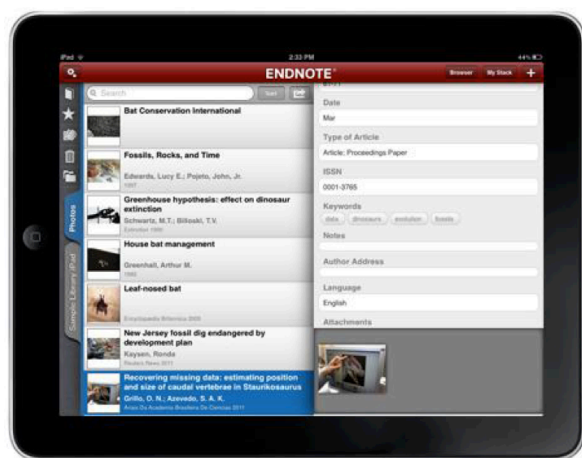
Contact: Ellen.rotenberg@thomsonreuters.com

Bio: Ellen Rotenberg is Senior Manager, Product Innovation for the Scientific and Scholarly Research business of Thomson Reuters. She is responsible for the development of new products and solutions to improve productivity for the global academic and government research market. Ellen has played a key role in initiatives related to scholarly author identity (ResearcherID) and attribution as well as web service and API access to Web of Knowledge content. She has a Masters in Bioinformatics from the University of the Sciences in Philadelphia.

Brief Summary

Ellen Rotenberg presented on new offerings for the Thomson Reuters Web of Knowledge and EndNote® to improve the researcher's information workflow. These new tools address gaps in how researchers access content.

For Web of Knowledge, Rotenberg presented on Data Citation Indexsm -- an exciting, new, and comprehensive index of digital content that will be released in Fall 2012 that will make the data citable, searchable and reusable.



There are four document types in Data Citation Index:

- Repository: the resource comprised of data studies, data sets and/or microcitations
- Data Study: descriptions of studies or experiments with associated data used in the data study; includes serial or longitudinal studies over time.
- Data Set: A single or coherent set of data or a data file provided by the repository, as part of a collection, data study, or experiment
- Microcitation: aka nanopublication; the smallest unit of publishable information; an assertion about concepts that can be uniquely identified and attributed to the author, e.g. "Mosquitoes transmit malaria"

For EndNote, Rotenberg presented on the EndNote iPad app, which will be available later in 2012, bringing the power of EndNote to the iPad as a native application. Using stack technology, the EndNote app will have an interactive multi-panel design.

Speaker: William Gunn, PhD, Head of Academic Outreach, Mendeley, Inc.

Slides: Supporting the Researcher Workflow through User-Centered Design

Link to slides: https://www.dropbox.com/s/erkqav84vs9undt/SLA_2012_computer_science_roundtable.pdf

Contact: <http://www.mendeley.com/profiles/william-gunn>

Bio: Dr. William Gunn is the Head of Academic Outreach for Mendeley, the leading research management tool for collaboration and discovery. Dr. Gunn attended Tulane University as a Louisiana Board of Regents Fellow, receiving his Ph.D in Biomedical Science from the Center

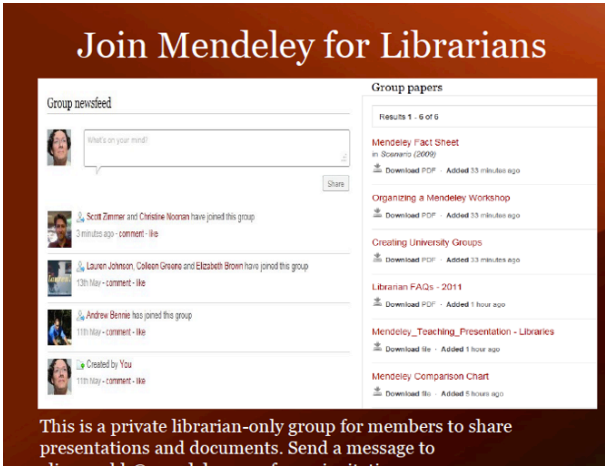
for Gene Therapy at Tulane University in 2008. His research involved dissecting the molecular mechanism of bone metastasis in multiple myeloma and resulted in a novel treatment approach employing mesenchymal stem cells, the body's own reparative forces. Frustrated with the inefficiencies of the modern research process, he left academia and established the biology program at Genalyte, a novel diagnostics startup. From there, Dr. Gunn moved to Mendeley to pursue his mission of bringing modern network efficiencies to academic research.

Brief Summary

William Gunn spoke about "Instrumenting the Research Workflow" with Mendeley and gave a few examples of how Mendeley aids the researcher at each step of their research process (Searching, Reading/Annotation/Organization, and Writing). Gunn also discussed how Mendeley focuses on "connecting scholars in the cloud."

The issue is, "research is a social activity, but the tools and the data aren't." Gunn showed how Mendeley's desktop tool aids reading, organizing research, and collaborating with colleagues. Mendeley makes research more collaborative and transparent by aggregating data research in the cloud, extracting research data, and collecting rich signals from domain experts. He then shared how Mendeley leverages the social signals provided by the 2 million researchers using their service to aid discovery of new research.

Gunn also showed the attendees how their new product, the Mendeley Institutional Edition, works to collect institutional level activity metrics. In short, Mendeley Institutional Edition is like Google Analytics for research on your institution. Gunn described another product, Mendeley Web, as a crowdsourced catalog of research, a social network of researchers, and a web service for research data and statistics. It goes beyond counting citation and statistics to a real-time view of content usage.



Join Mendeley for Librarians

Group newsfeed

What's on your mind?

Share

Scott Zimmer and Christine Norman have joined this group
12th May - comment - like

Lauren Johnson, Colleen Owens and Elizabeth Brown have joined this group
12th May - comment - like

Andrew Bernie has joined this group
12th May - comment - like

Created by You
12th May - comment - like

Group papers

Results 1 - 6 of 6

Mendeley Fact Sheet in Scenario (2009)
Download PDF - Added 13 minutes ago

Organizing a Mendeley Workshop
Download PDF - Added 13 minutes ago

Creating University Groups
Download PDF - Added 13 minutes ago

Librarian FAQs - 2011
Download PDF - Added 1 hour ago

Mendeley Teaching Presentation - Librarians
Download file - Added 1 hour ago

Mendeley Companion Chart
Download file - Added 5 hours ago

This is a private librarian-only group for members to share presentations and documents. Send a message to alison.robb@mendeley.com for an invitation.

Gunn asked libraries to add Mendeley to their library websites and integrate Mendeley's set workshops into the library's curriculum. Lastly, he gave a plug for the Mendeley for Librarians Group (<http://www.mendeley.com/groups/1109431/mendeley-for-librarians-public-no-files-in-here/>) as a great place for librarians to get help from fellow librarians on learning about and using Mendeley.

DRM: The Discussion Continues

Submitted by Patricia Aspinwall

Moderators: Bert Saul, Simpson Gumpertz and Heger Inc.; Sabina Tannenbaum, LTK Engineering Services

Panelists: Scott Ahlberg, Reprint Desk; Diana Bittern, Knovel; Steve Noth, IHS

The moderators opened the session by summarizing what was discussed at SLA 2011 and the continued conversations since then.

Issues raised were:

- Desire to treat an electronic acquisition in a traditional way (purchasing it once and share it serially).
- DRM dealing with the different user-access models different libraries have.
- Dealing with the longevity of electronic documents (who owns the document after the subscriber relationship ends).
- Dealing with ownership labels.
- Dealing with usage statistics.

After that, the floor was opened to the panelist who briefly described what each of their organizations do. All panelists commented that DRM has some problems, but when used well, it can be supportive. DRM is usually put in place by the publisher and it is trying to enforce legal copyright.

Then the floor was opened for questions. There were many complaints about DRM, but as it was discussed these were more business model related problems or technology problems. The discussion ended that different users have different needs which will lead to differing views of DRM. ❖

News from the Science-Technology Division

Science-Technology Division Cheryl Hansen, Chair

The objectives of the Science-Technology Division shall be to draw together those members of the Special Libraries Association having an interest in the role of library and information science as applied to the recording, retrieval and dissemination of knowledge and information in all areas of science and technology, and to promote and improve the communication, dissemination and use of such knowledge for the benefit of libraries and their users.'



Just think, we are already halfway through 2012. Time has flown by since the last issue of STN came out. The 2012 Chicago Conference has come and gone and was a success. I hope that many of you were able to join your colleagues there to network, learn new things, share your knowledge, network, and enjoy the receptions, get refreshed and network. Yes, I just used network multiple times. The reason for that is that one of my top reasons for attending the annual conference is to network with my friends/colleagues.

I also go to find out what is new in the profession, what has come around again, to gain knowledge but in the end it always circles back to networking. For me SLA is a gigantic network that helps me to identify, locate and deliver the information that my users need. I love to hear one of my engineers tell a guest that "our librarian is connected all over the world and can find almost anything." What makes that possible is the network that I have gained through being a member of SLA for the past twenty-eight years.

I hope you read brief write-ups on the programs that Sci-Tech sponsored. Attendance at Sci-Tech programs was very good, I am happy to report. Our annual breakfast/business meeting started off our programming and we ended with the always popular Science-Technology and Engineering 101 session on Wednesday morning. On Monday morning, we met our various division award winners. Geeta Paliwal won the Bonnie Hilditch International Librarian Award, Vivienne Houghton won the S. Kirk Cabeen Travel Stipend, and Simon Barron won the Diane K. Foster International Student Travel Award. Joe Kraus, past chair won the Impossible Award.

The Keynote speaker on Sunday was Guy Kawasaki, Apple's former "chief evangelist" and co-founder of ALLTop.com, who was great. He talked about his latest book, *Enchantment*, that came out in 2011. I will no longer worry about crow's feet around my eyes since hearing him.

The SLA business meeting went well; things are still tight moneywise with the Association but are slowly getting better according to our Treasurer, Dan Trefethen. Headquarters staff is the smallest it has been in years and is working harder than ever for us.

The amount of vendors at the Info Expo was down from past years, but the ones there got lots of questions from the attendees. And what would the annual conference be without the receptions put on by the units and the vendors? My favorite this year was the dance party put on by the IT Division and Dow Jones. It was a good time to let loose and relax with friends after a long day of meetings.

Please remember to check the Sci-Tech website for new information regularly <http://scitech.sla.org/> -- it is a great place to keep up with what is happening within the division. Also please remember that our yearly unit election is in September. PLEASE VOTE. The three candidates for treasurer and the candidate for chair-elect were introduced at our annual business breakfast and their bios will be sent out again closer to the election. They are also located further on in this issue. Many thanks to these four people who are running for office. I will use this as a chance to ask all of our membership to consider becoming more involved with the division. Put yourself up as a candidate for office or to chair a committee or just to sit on a committee. Sci-Tech needs you; we are stronger when we work together.

One more plug before I close. There are several open positions on the Sci-Tech Board that need filling, please contact me (cahansen@esi-il.com) if you are interested in one of these.

The openings are for a Vendor Relations Chair, STN Business Manager and for a Professional Development Chair. No experience needed, just a willingness to learn and to try new things. Again contact me if you want to learn more about these positions.

My THANKS to all those who have helped me so far this year, I couldn't do it without your help. Have a great fall! ❖

Cheryl Hansen,
2012 Chair, Sci-Tech Division
cahansen@esi-il.com

Science-Technology Division New Members

Submitted by Sarah Oelker, Membership Committee Chair, Science-Technology Division

The Science-Technology Division welcomes its new members:

Simon Alcock
London, England
UK

Phillip Hewitt
Allentown, PA
USA

Laura Mullin
Chantilly, VA
USA

Simon Barron
Durham, England
UK

Vivienne Houghton
Glendale, CO
USA

Anna Muszynski
Lexington, MA
USA

Harry Brooks
Gaithersburg, MD
USA

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Lisa Ngo
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Kira Cooper
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Staci Kaplan
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USA

Michael Shapiro
Seattle, WA
USA

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Ithaca, NY
USA

Gail King
Noblesville, IN
USA

Cheryl Thompson
Hillsborough, NC
USA

Carol Darlington
Hopeland, PA
USA

Diane Leblond
Morrisville, NC
USA

Beth Thomsett-Scott
Denton, TX
USA

Michelle Dillon
Seattle, WA
USA

Nicole Luce-Rizzo
Hoboken, NJ
USA

Arwen Ungar
Portland, OR
USA

Bernadette Duffy
Vancouver, BC
Canada

Susan Lynch
New Paltz, NY
USA

Matthew Woods
San Francisco, CA
USA

Liz Francis
Allston, MA
USA

Amanda Malanowski
Glen Burnie, MD
USA

Peter Grimm
Olney, MD
USA

Brittany Mudd
St Charles, MO
USA

Science-Technology Division Member Profile: Abby Bedford

Submitted by Sara Samuel, Membership Committee, Science-Technology Division

As the new *Sci-Tech News* Assistant Editor, we thought it would be good to introduce Abby Bedford to the readership. Abby is a science librarian at Grand Valley State University in Allendale, Michigan. She mostly works with undergraduate students in her subject areas, but also does collection development and instruction for those areas. Abby was gracious enough to answer some questions via email to help us get to know her a bit better.

Tell us a little bit about your current position.

I am the liaison librarian for Biology, Biomedical Sciences, Cell & Molecular Biology, Chemistry, and Physics. The first three areas have master's programs, but I mostly work with undergraduate students. My responsibilities include collection development and instruction for those areas. I'm also tenure-track faculty, so that means I need to be participating in service within the university and within librarianship as well as working toward publishing (or other scholarly/creative output related to librarianship).

Tell us why you wanted to become a librarian.

I became a librarian for two reasons. One, I love a good puzzle. Searching for literature for a student on a topic about which I know very little is a challenge I can't pass up. I kind of feel like House, M.D., in my puzzle obsessions. Two, I really enjoy helping people out. There's nothing more rewarding than helping a student find that perfect article or seeing the light bulb moment for a student during a library instruction session.

What was your background before you became a science librarian?

I went to school for music--vocal music to be specific--and then went to library school with the intention of becoming a music librarian. I ended up working at a health sciences library as a grad student which led me into a health sciences position after graduating. When the science position opened up on the main campus of GVSU, I jumped at the opportunity for a new challenge.

What do you find most interesting about your work?

I love that I get to hear about all the great things going on in the science world. I'm not a scientist by any means and exploring science topics with my students and faculty helps me to understand something into which I wouldn't ordinarily have any insight.



Abby Bedford

What do you think is the most interesting issue in librarianship today?

I think that demonstrating our value is a hugely interesting concept. We can't just write reports saying libraries are valuable, we have to sell ourselves. We have to learn how to perform.

What has been your biggest professional challenge?

I've been having a hard time finding my "niche" in librarianship. I don't necessarily fit the traditional liaison librarian mold and I'm trying to figure out how who I am can serve the profession. I also struggle with being a tenure-track faculty member. The need to publish and be a part of faculty governance at a young(er) age is a bit stressful. I've been elected chair of a governance committee for this coming academic year and I'm petrified, but I know it will be a huge growing experience for me.

What organizations are you involved in?

I've been involved in the Michigan Library Association and am a member of ALA & ACRL. Recently, I took on the post of assistant editor of *Sci-Tech News*.

What are some of your interests outside of librarianship?

I'm a musician by training, so I sing with the Grand Rapids Symphony Chorus. This past year we had a great season, including Beethoven's 9th, Mahler's 8th, and live accompaniment to *The Lord of the Rings: Return of the King*. I'm also an avid knitter and all around DIY addict. On the side, I do some graphic design work.

What advice would you give a new member of SLA, new Librarian, or someone starting out in science librarianship?

Jump in head first. Don't wait for someone to tell you what to do. Show initiative. And if you don't know anything about science (like me), go out and learn it. SLA offers great CE courses to help you out and there are some fantastic webinars available out there to help you get on your way.

Thank you, Abby, for sharing with us!

Here are some links to things that Abby mentions:

- Grand Valley State University: <http://gvsu.edu/>
- Grand Rapids Symphony Chorus: <http://www.grsymphony.org/grs/affiliates/chorus/>
- Michigan Library Association: <http://www.mla.lib.mi.us/>
- American Library Association (ALA): <http://www.ala.org/>
- Association of College & Research Libraries (ACRL): <http://www.ala.org/acrl/>
- SLA Click University: <http://www.sla.org/content/learn/index.cfm>❖

Science-Technology Division Candidates

for Chair-Elect and Treasurer

The Sci-Tech Division Nominations and Elections Committee is very excited to present to you the candidates who have stepped up to run for Chair-Elect and Treasurer (starting in 2013). Get to know these candidates and thank them for offering to run for these important and critical leadership positions within our Division. We have fantastic, smart, generous leaders within our ranks and these 4 candidates are ready and willing to continue to support our Division.

Electronic voting will begin in September. The voting instructions will be sent to Division members via the Sci-Tech Division email distribution list (SLA-DST@sla.lyris.net) and will be posted on the Sci-Tech Division website (<http://scitech.sla.org/>).

Have questions? Contact any members of the 2012 Nominations and Elections Committee:

Hilary Davis, hilary_davis@ncsu.edu

Pam Enrici, penrici@d.umn.edu

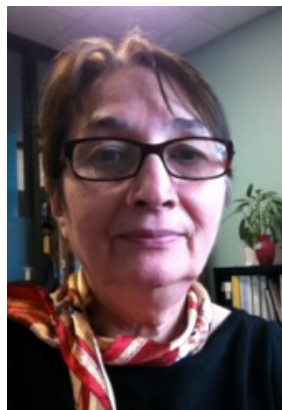
Anna Ren, annawu@northwestern.edu

Christine Whitaker, christine.whitaker@uscmed.sc.edu

Nancy Wilmes, n.wilmes@wayne.edu

Candidate for Chair-Elect:

The Chair-Elect serves a 3-year term as Chair-Elect/Chair/Past-Chair from January 2013 through December 2015. 1st year: oversees programming planning for the 2014 annual conference. 2nd Year: leads the Board and makes committee appointments. 3rd year: responsible for governing documents.



Nevenka Zdravkovska: Nevenka Zdravkovska has been working at the University of Maryland since 2006 as the Head of the Engineering and Physical Sciences Library (EPSL). Prior to joining the University of Maryland, she was with Georgetown University since 1998 as Science Reference Librarian at the Blommer Science Library. For two years (1996-1998) Nevenka was the Reference Librarian at the Jefferson Lab in Newport News, VA.

Active in SLA since 2006, Nevenka is the current Treasurer of both the Science-Technology Division (DST) and the Maryland Chapter, and has been Chair of the International Committee of DST for five years. As Chair of the International Committee she was instrumental in establishing a joint international student travel award where DST teams with various SLA chapters each year to help library/information studies graduate students outside of North America attend SLA annual conferences. Nevenka was member of the DST Vendor Relations Committee when the Committee received recognition from the Division. Nevenka has wide-ranging experience in committee work, strategy, programming and event planning. If given the honor to serve the Science-Technology Division as Chair-Elect Nevenka looks forward to planning exciting, stimulating and informative programs and networking events for the Division, and increasing membership.

Nevenka has a Bachelor of Science in Physics and a Masters in Library Science.

Candidates for Treasurer (last name alphabetical order): serves a two year term, January 2013 to December 2014.

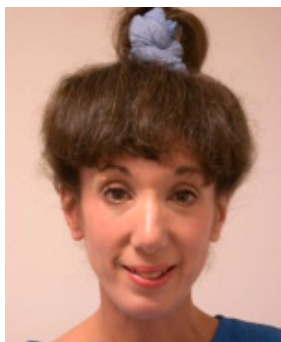


Thea Allen: Thea Allen is the Interlibrary Loan/Cataloging Librarian at the U.S. Environmental Protection Agency Library in Research Triangle Park, NC. She has been an active member in SLA since graduating from UNC SILS in 2007 in the Science-Technology Division, Environment and Resource Management Division (ERMD), and with the North Carolina Chapter. In Sci-Tech, Thea has served as the Chair of the Student Relations Committee since 2008 and has been a member of the Annual Conference Planning Committee for the past two years. She also served from 2007-2009 as the Treasurer of the Environment and Resource Management Division, and is currently the First-Year Director of the North Carolina Chapter of SLA. She is interested in continuing to stay active and involved in SLA and Sci-Tech. She believes that her past experience as Treasurer of ERMD will be beneficial in taking on this role within Sci-Tech and is looking forward to serving and helping out the Division.



Becky Miller: Becky is currently the Electronic Resources & Instruction Librarian at Touro University California, where she is a liaison to the Pharmacy, Public Health, and Physician Assistant programs. Prior to her current position, she worked on the Health and Environmental Research Online database project at the U.S. Environmental Protection Agency. Previously, she spent more than a decade working as a biologist, with a specialty in botany and wetlands. While taking classes towards her MLIS, she discovered SLA through an email advertising the Sci-Tech Student Membership contest – she entered the contest, and she's been an SLA Sci-Tech Division member ever since. In 2009 Becky won a student stipend to attend her first SLA annual meeting, where she had the opportunity to meet other Sci-Tech members and was asked to join the Student Relations Committee (SRC). She has been an active member of the SRC and helped start the Conference Buddy program, which she now coordinates. She has also written articles for chapter and division newsletters, planned and attended neighborhood dinners, and presented a poster at the All Sciences Poster Session.

Serving as Treasurer of the Sci-Tech Division would give her an opportunity to contribute to the Division in a different way and learn new skills. She has been treasurer of two co-op houses, and is actively involved with budgeting at her library.



Sheila Rosenthal: Sheila Rosenthal is currently a Senior Librarian and member of the Library Faculty at Carnegie Mellon University (CMU). She also serves as Manager of Library Services at the Carnegie Mellon Software Engineering Institute (SEI) Library, where she has been employed for the past twenty five years. In June 2002, Sheila received the University Libraries' Faculty Achievement Award for Excellence in Customer Satisfaction. In 2005, Sheila joined and became a very active member of the FFRDC (Federally Funded Research and Development Centers) RCIM (Research Center Information Managers) Group which allows her to network and bond with Library Directors at many of the FFRDCs that have important and influential relationships with the SEI.

Sheila is also very active in the Special Libraries Association (SLA), as the current Chair of the Awards Committee for the Science-Technology Division, a position she has held since 2007. Award winners have included applicants from within the United States as well as two International Awards. Recipients of these International Awards have included members of the Asian, European, and Australia/New Zealand Chapters within SLA. This year she has applied for the position of Treasurer for the Science-Technology Division. She is interested in this position as a way of becoming more active within the Division although she still greatly enjoys chairing the Awards Committee. Her position as Awards Chair increased her involvement with the SLA Asian Chapter and in March 2012 she was invited to their LIPS 2012 conference in New Delhi, India, to submit and present a paper ("Institutional Research Data Collection Methodologies and Tools: Library Request System and Citation Analysis") and to chair one of their conference sessions. In 2010, Sheila co-authored a book chapter ("Life as a Corporate Librarian at the Software Engineering Institute") for Best Practices for Corporate Libraries, edited by Marjorie J. Porter and Sigrid E. Kelsey.❖

Science-Technology Division Committee Reports

*Science-Technology 2012 Committee Reports given at the
SLA 2012 Annual Conference, Chicago, IL July 14-18, 2012*

Archives report July 2011 – June 2012

Richard P. Hulser, Chief Librarian, Natural History Museum Los Angeles County, asked me whether the Archives needed any back issues of the Bulletin that he was disposing of. Since they were already in the Archives collection he sent the 1987-1988 issues to Abby Thorne, Editor, *SciTech News*, for use in a scanning project.

I supplied Abby a scan of an article that Richard Hulser wrote about Ellis Mount ("Ellis Mount: a portrait", *Sci-Tech News* Vol. 39, No. 1 (January 1985): 5.) that she and Richard were considering reprinting in *SciTech News*. Ellis Mount, passed away recently.

I supplied Cheryl Hansen a list of past Sci-Tech Achievement Award winners.

Abby Thorne has the files for the 2009 - 2011 issues of *SciTech News* burned to a CD. We corresponded about placing a copy in the archives but never decided on a plan.

I have not been very diligent this year with several ideas for the Archives from previous years. They are listed below.

Future plans:

Should we try to post older electronic documents in Archivist files that are not on the SLA wiki?

Work with webpage manager to take a snapshot of Sci-Tech website every 6 months or so and burn to a CD/DVD for archives. Note: there are some pages archived at http://web.archive.org/web/*/http://units.sla.org/division/dst/ from July 17, 2006 to June 20, 2008.

The archives contain duplicate copies of many current issues of the *Sci-Tech Bulletin* in case we want to scan them. I could probably have a few of my student workers do the work if there are no copyright issues involved in putting these on the Sci-Tech Division website.

Send updated inventory to webpage manger.

The Archives contains bound issues of the *Bulletin* through 2007. I should bind the ones af-

ter that date.

I need to print off using acid-free paper any Bulletin issues that we need that no longer come in print. So far I have printed Vol. 64, issues 1 and 2 (2010).

This summer I need to check the wiki and print off any documents that should be placed in the archives.

Submitted by Roger Beckman, Division Archivists July 12, 2012

Awards Committee Report



Sci-Tech Division Award Winners (left to right):
Vivienne Houghton, Geeta Paliwal, Simon Barron

First I would like to thank our returning committee members whose contributions are so greatly appreciated and who make my position as committee chair so rewarding and enjoyable: Diane Brenes, Engineering Division Awards Chair and co-sponsor of the Bonnie Hilditch Award, Molly Tebo, Dr. Shantanu Ganguly, Sara Samuel, Susan Powell, Dr. P.K. Jain, Dr. Debal C. Kar, Kathy Nordhaus, and Cindy Xiang. New members of our committee were Cynthia Cohen, last year's S. Kirk Cabeen Award winner and Dr. Harish Chandra winner of the 2011 Bonnie Hilditch Award. Unfortunately Dr. Chandra has been unable to attend both the Philadelphia and Chicago conferences so he has never officially received his Award. This year there were no nominations for the Sci-Tech Achievement Award, unlike last year when we had two winners, Susan Fingerman and Dr. Debal C. Kar.

It is unfortunate that Alaa H. Ridha the winner of the 2011 Sci-Tech Division and Arabian Gulf Chapter Student Award, has never joined SLA and never fulfilled her responsibilities for receipt of this award which included writing an article about her conference experiences for the fall issue of *Sci-Tech News* and serving as a member of the Sci-Tech Awards Committee for at least one year following the conference.

Diane K. Foster International Student Travel Award

At the June 2011 Sci-Tech Board Meeting in Philadelphia, Joe Kraus brought up the idea of honoring Diane K. Foster by naming our International Student Award the Diane K. Foster International Student Travel Award. This name change was officially approved by the Board at that meeting.

Nevenka Zdravkovska continued to offer her expert assistance in support of our Diane K. Foster Award. Since we had never worked with the Sub-Saharan Africa Chapter Nevenka initially tried to contact them. Formed in 2001, they are a very small chapter with only 23 members and they do not have an Awards Committee. Since this chapter was rather difficult to contact we thought it might be better to wait a few years for their membership to grow before we try to co-sponsor this award with them. In late September Nevenka was contacted by Bethan Ruddock Chair of the European Chapter Awards Committee, who asked if Sci-Tech was still interested in co-sponsoring the SLA Europe Early Career Conference Awards (ECCAs). We responded very favorably and agreed that we would each contribute \$1,000 to this award. Bethan was hoping to launch the awards late Dec/early Jan, and wanted to have a member of our Division on the judging panel. She had a total of 34 applicants and sent me all of the nomination materials for the 5 Sci-Tech applicants which I shared with our Awards Committee. Bethan was very organized, providing an official form for us to complete a section on each applicant and give reasons for the choices that we made. Our Awards Committee reached a very strong and decisive conclusion that Simon Barron would be the winner of this Award for the Sci-Tech Division. Simon was a "First Class Student" with an impressive work history who had also done a great deal of campaigning work for library advocacy. We were able to send the committee's decision to Bethan by her required due date of March 12th 2012 and she agreed that Simon was the best candidate. I

volunteered to be Simon's mentor before, during and after the conference. This was the fifth year in a row that the Sci-Tech Division had teamed up with an SLA Chapter outside of the US to honor an International MLS student, and the second time that we co-sponsored with the European Chapter. We really appreciated and enjoyed working with Bethan Ruddock on this Award.

The 2012 *S. Kirk Cabeen Travel Stipend* was awarded to Vivienne Houghton. Vivienne graduated from the University of Denver with a Master's in Library and Information Science in June 2012. She has also earned an Early Childhood Librarianship Fellow and received her undergraduate degree from the University of California at Los Angeles, a Bachelor of Arts in East Asian Studies, graduating Cum laude. Since March 2012 Vivienne has been working as a Research Fellow at the Library Research Services, Colorado State Library. In this position she does data and research analysis to create reports on Broadband Technology Opportunity (BTOP) Grant Project for Colorado's Public Computer Centers.

An Independent Study provided the opportunity for her to work in Dublin, Ireland and Borås Sweden. Vivienne has won several awards and participates in numerous professional activities and services, has attained a wide variety of computer skills and is a member of 9 professional associations on the state, national and international levels. These international associations include ALA, MLA and SLA.

The 2012 *Bonnie Hilditch Science-Technology and Engineering Divisions International Librarian Award*, was awarded to Ms. Geeta Paliwal. Geeta is currently pursuing her Post Graduate Diploma in Library and Networking from the Indira Gandhi National Open University (IGNOU) in New Delhi, India. She has a Masters of Philosophy (M.Phil) in Library and Information Science and an MLIS from the University of Delhi, and plans to pursue a Ph.D. in Library and Information Science. Geeta is currently working with Dr. P.K. Jain at the Institute of Economic Growth Library in Delhi, India. She has written many papers which have been presented and published in national and International conferences. Geeta joined SLA and became a member of the Science-Technology Division in 2009. In 2011 she won the "Early Career Award" that was sponsored by the Business & Finance Division and the Asian Chapter of SLA. This was

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—Uta Grothkopf, Librarian
European Southern Observatory

NEW

40,000 papers
added back to
Vol. 1 (1962)



Astronomy



Biomedical
Optics



Optoelectronics &
Communications



Defense
& Security



Energy



Lasers



Nano/Micro
Technologies



Sensors

the first time she had attended an SLA Conference and was also the first time she had come to the United States.

This year at Dr. P.K. Jain's invitation, I had the privilege of attending the Library and Information Professionals Summit (LIPS) 2012 where Geeta Paliwal was a very active participant. She did an excellent job working with Dr. P.K. Jain and the other conference organizers in making this conference such a huge success. In addition to assisting in Award presentations and distributions at the conference, release of the conference proceedings, and helping to organize a beautiful Cultural Program as a delightful conclusion to the first day's events, Geeta also presented a paper that she had written with Dr. P.K. Jain entitled, "Leadership and Professionalism in Library and Information Services". This paper was also published in the LIPS 2012 Conference Proceedings.

Regarding our Longevity Awards, there were a total of 17 winners. I have placed the listing of all 17 Longevity Award Winners at the end of this Committee Report.

We had two Retiree Award Certificates – Susan Snyder and Dr. Robert Ballard.

For the past 22 years Susan Snyder has worked in the Catalog Department at Cuyahoga County Public Library, in Parma, Ohio. She retired this summer and her last day of work was June 29, 2012. She will not be able to attend the SLA Annual Conference this year because she will be preparing to present a workshop session on the Dewey decimal classification at the Church and Synagogue Library Association Annual Conference later in July. She expressed her gratitude for our interest in the members of our Division who are retiring.

Dr. Robert Ballard wrote to me in April 2012 to let me know that he was planning to retire at the end the semester this year. I spoke with him at the Annual Conference in Philadelphia last year and asked him to send me a summary (vita-review) of his life when he retired. He inserted this into his email and I have captured it below:

Dear Sheila:

AT SLA last June, you told me to send you a summary (vita-review) of my life when I retired. I am retiring at the end of this semester. I think

that it was you. If I have made a mistake, disregard.

I am a native of Atlanta Georgia. I graduated from Morehouse College with a major in history in 1958. I earned the MLS from Atlanta University in 1961, the MA in Education from Eastern Michigan University in 1969, and the PhD in Library Science from The University of Michigan in 1972. Living in Atlanta in the midst of the civil rights movement and moving to Ann Arbor, Michigan in the middle of the anti-Viet Nam war movement were the big events of my young adult life. The changes that we see in society today were shaped by those times and I am happy to have a part of them even as face in the crowd. I began my professional career as a academic librarian. In 1966, I accepted a position as librarian/Information Officer at the Great Lakes Research Laboratory of the United States Bureau of Commercial Fisheries, now a part of the United States Department of Commerce in Ann Arbor, Michigan. With my history background in a freshwater biology laboratory, I was overwhelmed. I sought help at what appeared to be a library similar to mine on the campus of The University of Michigan. I believe it was the School of Natural Resources. I walked in unannounced and there I met a young librarian by the name of Judith J. Field. Neither of us could have imagined that one day, she would become the President of the Special Libraries Association.

Judy changed my life. She told me one day, that we are going to the state meeting of the Special Libraries Association. I said, I am not a member. She said "I said you are going". It was a decision that I value to this day. Along the way, I have been a member of more than one division, but the one constant was the Science and Technology Division. In 1982, I became Editor of *Sci-Tech News*. When I stepped down in 1989, I was at that time the longest serving Editor of *Sci-Tech News*. It was a great honor to be awarded the Sci-Tech Division Achievement Award in 1990. There have been other honors or achievements along the way, but my association with SLA and the Sci-Tech Division has always figured prominently in my life and everything that I have done. I began my teaching career at the School of Librarianship at Western Michigan University. I established Special Libraries Association Authorized Student Groups at both Western Michigan University and North Carolina Central University. As time passed, I was always happy to meet these former students at SLA Annual Meetings. For 36 years now, I have been on the Faculty of the School of Library and Information Sciences at North Carolina Central. In 2003-2005, I served as Interim Dean. In 1977-78, I was a Fulbright-Hays Professor in the Department of Library Studies at the University of Zambia. I was very proud when two of my former

students from the University of Zambia chose to do their graduate work at North Carolina Central University. In May of 2011, I was invited to two out sourcing fairs in Chongqing and Mannshan, China. I presented a paper in Mannshan. In that presentation, I made reference in a PowerPoint to a paper that Jason Howard, a 2011 SLIS graduate had written for my Government Publications class. There is nothing that has made me prouder than having two former students Rebecca Varga and Doris Hefner run for President of the Special Libraries Association in the same year. Only one (Rebecca) could win. But I could not lose. Last June at our SLA Annual Meeting, I walked in to our opening general session just in time to hear Doris Hefner call my name as one of those that she gave thanks to as she accepted the Association's Hall of Fame award. So now I say thank you Doris. thank you SLA and thanks to all of my former students everywhere.

Sincerely,
Robert M. Ballard
Professor

Respectively submitted by Sheila L. Rosenthal,
Chair, Science-Technology Division Awards
Committee

2012 Science-Technology Division Awards Com-
mittee Members:

Diane Brenes (Engineering Division Awards
Chair- co-sponsors Bonnie Hilditch Award)
Harish Chandra
Cynthia Cohen
Shantanu Ganguly
P.K. Jain
Debal Chandra Kar
Kathy Nordhaus
Susan Powell
Sara Samuel
Molly Tebo
Cindy Xiang

17 Longevity Award Winners
Susan Ardis – 25 years (1987)
Roger Beckman – 25 years (1987)
Linda Dodson – 30 years (1982)
Josh Duberman – 25 (1987)
Arthur Freed – 55 years (1957)
Richard Hulser – 30 years (1982)
Debra Kaufman – 25 years (1987)
David Lane – 25 years (1987)
Richard Leacy – 25 years (1987)
Sharon Lieberman – 25 years (1987)
Anita Newell – 55 years (1957)
Wilda Newman – 40 years (1972)
Rocco Piccinino – 35 years (1977)

Amanda Putnam – 30 years (1982)
Suzanne Stanek – 30 years (1982)
David Stern – 30 years (1982)
Wei Wei – 25 years (1987)

Cataloging Liaison, SLA Sci-Tech Division

Summary of Year's Events for 2012 Sci-Tech Di-
vision, Board of Directors meeting

Thea Allen continues to serve as the Catalog-
ing Liaison for the Sci-Tech Division. Any news
pertaining to information about cataloging,
RDA, FRBR, or other items related to catalog-
ing are sent out to the members of the Sci-Tech
Division's listserv.

SLA Sci-Tech Division Membership Com- mittee Report

July 7, 2012

June 2012 data from Membership office lists
DST as having 438 members. Compare to pre-
vious years:

- May 2011: 460
- June 2010: 520
- June 2009: 554
- June 2008: 528
- June 2007: 594
- June 2006: 597

(Data from June 2011 Membership Committee
report)

New members welcomed June 2011-May 2012:
64

New members welcomed July 2010-April 2011:
53 (compare to 85 from 7-2009 to 5-2010)

Newcomers lunch:

We have a full event of 15 people, and those of
our award winners who can attend will be at-
tending. Event is planned for Jimmy Green's at
825 South State Street, Chicago, IL.

Ongoing initiatives:

- Quarterly lists of new members
published in Sci-Tech News, beginning
with the Fall 2010 issue
- Enhanced follow-up with lapsed
members, providing opportunity for
anonymous feedback on why members
left and what we can do better—no new
data

- Google maps representation of locations (city and country) of our membership: see wiki for more info.

New initiatives underway:

- Collaborating with Public Relations committee on writing a series of Mystery Member profiles on the listserv—planning for next profile will happen soon.
- Collaborating with Public Relations committee on other events/programs TBD.
- Collaborating with Student Relations Committee on existing and new outreach projects.

Respectfully submitted,
Sarah Oelker (soelker@mtholyoke.edu), Membership Chair

Government Relations Report

The Government Relations Committee has been monitoring the Public Policy Discussion Group and the Association of Research Libraries Influencing Public Policies. Topics of interest are distributed to Sci-Tech Division members via the list-serve.

That is my very brief report. I will not be able to attend the annual conference this year.

Regards,
Karen Buxton
SLA Sci-Tech Division, Government Relations Committee
Pacific Northwest National Laboratory
902 Battelle Boulevard
P.O. Box 999, MSIN K1-18
Richland, WA 99352 USA
Tel: 509-375-2982
Fax: 509-375-6550
karen.buxton@pnnl.gov
<http://www.pnnl.gov>

Public Relations Committee Report

This year the PR committee refocused its efforts to aiding sci-tech librarians with their interactions with a broad range of different publics.

Our listing of innovative and unusual sci-tech-librarian-led projects can be seen on the Sci-Tech website. It lists many examples of novel

ways to improve relations with different groups across campus that others may wish to emulate. It also includes a suggestion for explaining each project to administration to highlight the vital and innovative nature of sci-tech librarianship in the modern age.

Also available on the Sci-Tech website is a brief guide to open access for faculty: a document that gives the sci-tech librarian perspective to help them understand their publishing options.

A third project, also on the website, is a lists of reliable science news podcasts, each with a review detailing their strengths and weaknesses. A companion list of reliable science news websites is not quite ready for its unveiling. When complete, it is hoped that these lists will serve as a useful guide for faculty members who wish to include current scientific events in their curriculum and for students seeking aid in finding essay topics who lack the science information evaluation skills we have developed as sci-tech librarians.

Other projects in early stages include a guide to succeeding in science librarianship without a science background, with particular focus on the tricky issue of relating to science faculty. (This may be best done in the form of a roundtable discussion at SLA 2013.), a script (or possibly a presentation) for science librarians to use to talk about science information literacy at Science Cafes and other public science lecture venues and a best-practices document for doing a similar science info-lit talk for non-science-major classes.

Bill

William Jacobs
Science and Engineering Librarian
University of Miami
billjac@miami.edu

SciTech News

SciTech News continues to publish four electronic issues per year.

In April, Abby Bedford, Assistant Librarian at Grand Valley State University, was named Assistant Editor.

We continue to solicit submissions for the peer-

reviewed section, but have yet to receive any submissions. Please encourage fellow members of the contributing divisions and sections to submit papers for this section.

After receiving the back issues from 1989 through 2009 last fall and procuring issues from 1987 and 1988 this spring, Editor Abby Thorne has begun the process of digitizing the available back issues and uploading them to the *Sci-Tech News* website. At present the most recent two years of back issues (2008 and 2007) are available. She hopes to have the remaining issues uploaded by the end of the year.

Abby Thorne, Editor, STN

Student Relations Committee, SLA Sci-Tech Division

Summary of Year's Events for 2012 Sci-Tech Division, Board of Directors meeting

Membership

The Student Relations Committee has had another great year. We had three returning members including myself, Sarah Oelker, and Becky Miller, and one new member, Tiffany Lopez.

Ongoing Projects

We have continued to work on promotional outreach activities to North American LIS programs, promoting and furthering the Mentoring Program, co-hosting and coordinating on the Newcomers Luncheon, promoting and advertising the Kirk Cabeen Student Travel Stipend, and are planning our annual student membership contest.

SLA Annual Conference Buddy Program

We decided to do our Buddy Program again this year at the SLA Annual Conference. Becky Miller took the lead on this project. We had 5 total volunteers to participate, which lead to 2 Buddy pairs being connected. We plan to follow up with them after the Conference to check in and see how things went.

Mentoring Program

The Mentoring Program is still ongoing. It has slowed down in the past few years. We continue to try to promote it on our listserv, in an email to new members, in *Sci-Tech News*, and on Twitter quarterly, if possible. Since last year's Annual meeting we have set up 2 men-

tees with mentors. We hope to continue promoting this program and hopefully generating more interest.

Student Membership Contest

We are looking at potentially revamping the Student Membership contest this year with a different contest prompt. We normally ask for new ideas from students with ideas on how best Sci-Tech could help or promote itself to students more. We love the ideas we get and we try to implement them each year, but we have found that it is sometimes impossible for us to implement or try all or any of them due to our already busy work schedules. We will be holding the contest later in the Fall.

Resume Review

Unfortunately we were unable to launch the Resume Review program last year due to different issues, but it is still a priority and we hope to be able to move forward with it in the future.

We welcome all suggestions and ideas, as well as new members to our Committee. Please contact Thea Allen at theaallen@gmail.com 305 284-4059

ALA Liaison Report

Liaison Report of major programs at the Science & Technology Section of ALA, Annual Conference, Anaheim, CA, June 22-26, 2012

Note: Attendance was 9 more people than attended ALA New Orleans in 2011 – 20,134.*

The STS Anaheim program follows -- the schedule and notes created by Peter Larsen and Maribeth Slebodnik respectively:

Saturday, June 23

The Role of Metadata Standards in Scientific Data Publishing (Part II, continued from Midwinter): Enhancing access to scientific data sets has become a major goal of research funding efforts. Unless better care is taken to standardize the metadata and technical descriptors used to make them discoverable, there is a concern that these data sets might disappear within the corpus of "grey literature."

NIH Public Access Policy and the Library: Use, Development and Ramifications: This panel explored the diverse roles of librar-

ians in supporting the NIH Public Access Policy. Participants reviewed the NIHPA policy, PubMed Central submissions, and bibliographic management tools developed to help identify articles requiring PMC submission. They also discussed the benefits of this dramatic increase in PMC's freely available health science articles to researchers and libraries since 2008, alongside counter attempts by opponents hoping to derail the NIH Public Access Policy.

Taking Instruction to the Next Level: Creating Evaluations to Assess Student Learning Online: This program provided participants with a brief background in assessment methods as well as examples of assessments used specifically to evaluate online learning tools such as tutorials, course guides, course management systems, etc. Participants learned how to create effective assessments tailored to their needs, and examples of assessments used at several institutions to evaluate various online learning tools were shared.

Publishing Undergraduate Research: Resources and Innovations from the Library: This session was a discussion which addressed how science librarians could encourage undergraduates to publish and what kind of support could be offered for conducting research, writing and revising. Libraries could host contest or small conferences or panels, award prizes, and publicize achievements.

Federal Science Agency Update: The latest products and services from NASA, NTIS, and DOE were presented.

Sunday, June 24

Changing Roles for Sci-Tech Liaison Librarians in Research, Outreach & Instruction: Science & engineering subject specialists/liaisons are encountering dramatic shifts in terms of assigned duties and roles, and in terms of new expectations in the execution of the 'traditional' liaison roles. Results of 2 surveys were reported, one conducted by the Subject Librarian Task Force in 2011, to determine scope of current and future liaison work, and one conducted by the ACRL Information Literacy Standards Task Force to ascertain the future of library instruction.

Research Forum in which 3 in-progress research papers were presented and evaluated:

- "A Game Theoretical Exploration of Open Data and Open Science"

- "Exploring the Viability of Google AdWords as an adjunct Discovery Layer for the Science and Engineering Library"
- "Positioning Librarians as Leaders in E-Science and Data Management on Campus"

Data Curation as a Form of Collaborative Research: Data curation involves managing digital research data to facilitate access, dissemination, and preservation of information content and context. Librarians can engage with academic researchers in organizing, describing, and preserving research data from beginning to end of a project. This program examines data curation research opportunities for librarians, including the skills and knowledge needed for effective data curation; collaborative relationships between librarians and academic researchers; and approaches to data curation within the sciences, social sciences, and humanities.

Nuts and Bolts of Map Scanning: Scanning maps and making them available online presents many challenges for libraries and librarians. A panel of experts will discuss the details unique to scanning maps, including project planning and costs, tools and equipment, scanning and metadata standards, access strategies, copyright issues and more.

Monday, June 25

Preparing Tomorrow's Science Professionals: This program aimed at establishing a dialogue among science & technology librarians, faculty, and students, focusing on the issue of preparing today's students to become tomorrow's science professionals. The panel of librarians and faculty members explored the challenges professors face as they seek to educate emerging scientists, new outreach models for working with faculty on creating information and data literate researchers, and the ways librarians can work with science students to support their goals of becoming science professionals. The presentations were excellent, illustrating high level engagement with faculty and students in their respective universities: Dr. Bill Tomlinson, Informatics at UC Irvine; Jim Clark, Engineering Librarian at Miami Univ.; Jon Jeffries, Engineering Librarian at Univ. of Minnesota; Barbara MacAlpine, Science Librarian at Trinity Univ.; and Dr. John Rossi, Prof. Mol & Cell Biology and Dean, City of Hope.

Poster Session and Reception:

Eleven posters on research topics also related to "Preparing Tomorrow's Science Professionals"

You can access a PDF version of the 2012 STS Program brochure at the following URL: <http://tinyurl.com/STS2012-program> from Edward Eckel, III

Here is a sample from the session:

"Supporting the Sciences Without a Science Background" the poster by Kimberly Bailey hanold@pitt.edu

Public Posts from ALA Connect

- STS College Science Librarians Discussion Group, June 23, 2012: Summary
- STS 2012 Strategic Plan (ACRL Plan for Excellence) report
- AAAS-Liaison-Report-2012
- STS Continuing Education Committee - Annual 2012 - Meeting Agenda
- Research Forum for Science & Technology Library Research
- Program Poster Session (ACRL STS)
- Federal Science Agency Update
- All Task Forces Meeting (ACRL STS)
- Taking Instruction to the Next Level: Creating Evaluations to Assess Student Learning Online
- All STS Member Meeting & Breakfast (ACRL STS)

These links and more information can be found at: http://connect.ala.org/acrl_sts or <http://www.ala.org/acrl/aboutacrl/directory-of-leadership/sections/sts/acr-stsec>

The College Science Librarians had a creative discussion about projects geared to undergraduates that motivated and helped them to communicate by publishing. Their ideas and examples include: undergraduate science & technology journals, power point tutorials on assembling posters, practice in grant-writing, library awards, symposium participation, and production of a book with an honors class.

The Strategic Plan for STS has three major parts:

- Value of Academic Libraries
- Student Learning
- Research and Scholarly Environment

Notes from the full report: STSStrategicPlan-Report2012.doc

The first deals with establishing and proving the value of academic libraries by coupling their contributions with good institutional outcomes. The STS quarterly journal, *Issues in Science and Technology Librarianship* (ISTL), communicates scholarly work in science librarianship. Besides emphasizing "libraries as partners in research", accessibility of information and data, especially open access is an important concern. Other concerns are data management plans, ebook discovery systems, and allying academic librarianship with those touting the importance of higher education. There is a continuing need to develop responsive professional educational opportunities for librarians and especially programs for leadership skills.

To reach the second goal: the more creativity employed in designing new environments, the better to engage student learning. The emphasis is on creating new learning environments, both physical and virtual, new evaluation tools for the effectiveness of information literacy plans/programs, and building collaborative programs and partnership with other organizations. There are efforts to "build capacity for the librarians' role in supporting faculty development and the preparation of graduate students as instructors."

To promote research and a scholarly environment, sharing conference reports via webinars is being developed. *Issues in Science and Technology Librarianship* is STS' open - access journal.

There is promotion of interest in open digital scholarship and the curation of research data. STS will try to influence more open publishing policies and practices, and perhaps create and promote new structures that reward and demonstrate the value of open scholarship. The STS Scholarly Communications Committee has been formed to promote these goals. The STS Continuing Education Committee is also involved in similar issues plus data literacy and digital collections.

Development of metadata was addressed in a 2-part conference, "The Role of Metadata Standards in Scientific Publishing."

From the President's Message on page 5 in the July- August 2012 issue of *American Libraries*,

Maureen Sullivan quotes the ALA 2015 strategic plan's framework as being "a world where libraries, both physical and virtual, are central to lifelong discovery and learning and where everyone is a library user". (from Molly Raphael, out-going president)

AAAS – The American Association for the Advancement of Science – ALA Liaison

Alison Ricker attended and wrote the AAAS Liaison report for Flattening the World: Building a Global Knowledge Society, the theme of the AAAS Annual Meeting, held February 16-20, 2012 in Vancouver, B.C. Good discussion was generated at a Librarians' Caucus on improving science information literacy by presentations on collaborations among writers, faculty and librarians. The librarians at AAAS are included in the Information, Computing, and Communication Section (T). Alison and colleagues' poster was accepted and can be found here: Faculty, Librarian and Student Collaboration: Enhancing Science Teaching with Digital Collections <http://slidesha.re/NyRFyK>. Part of her responsibility was to promote interest in attending the AAAS Meeting -- with free registration!

From my (Louise Deis) notes:

Most of the sessions really were pertinent to academic librarians, and probably the overriding theme for all of us in SLA and ALA is keeping ourselves useful, relevant, and indispensable! There were excellent presentations by Gerald Steeman (NASA), Wayne Strickland (NTIS), and Tim Byrne (DOE) relevant to all. Science.gov is up to 50 databases and 2100 websites. Great strides are being made in digitization.

Data -- its management, curation, and visualization -- are exciting and important topics. "Data deluge" was coined by Tony Hey. Check out The Fourth Paradigm: Data-Intensive Scientific Discovery here: <http://research.microsoft.com/en-us/collaboration/fourthparadigm/default.aspx>.

Some open data storage and management projects are: Harvard's Dataverse, Oxford's Dataflow, and Duracloud.

I learned about www.worldwidetelescope.org, and Layerscape its derivative which has allowed for the visualization and management of data in the following areas: geosciences, climatology, astronomy, oceanography, and life sciences. Chronozoom, conceived by Bill Gates and David Christian, depicts the history of the universe from the Big Bang through human history (the Big History Project): <http://chronozoom2.cloudapp.net/#/t55>

The significance of Cloud Computing is growing. Fred Kilgour has been credited with its invention. Banking, for example, has been in the cloud for a long time. Some journal services "would be impossible without the cloud". The cloud lends itself to the creating of large projects. Because of utilizing the cloud, more "citizen", participatory, science is theoretically possible.

The most fun was attending the final concert of the Rock Bottom Reminders. It was a benefit for the Scholarship Fund. There were poignant moments since they'd decided to disband after the recent death of their founder and member, Kathi Kamen Goldmark. Other members of the group were: Dave Barry, Amy Tan, Roy Blount, Jr., Stephen King, and Matt Groening, occasionally wearing a Marge Simpson mask. Everyone was singing along...and dancing as space permitted! There are a few videos on YouTube of their performances taken at ALA/Anaheim and other venues.

*ALA Annual Conference 2012 Wrap-Up, American Libraries, July/August, 2012, p. 36. AmericanLibrariesMagazine.org

Louise Deis, SLA/ALA Liaison ❖

News from the Chemistry Division

Chemistry Division

Marie Fraties-Block, Chair

The Chemistry Division is concerned with chemistry and chemical technology, and the economics, educational advances, and information handling of developments in the field of chemistry and related subjects.



Wow! SLA 2012 has come and gone! I can't believe we made it through the blazing heat the McCormick maze! What a challenge.

We received great feedback on the programs along with some good ideas for future sessions. Many DCHE members worked hard on this conference as co-planners, instructors, speakers, and moderators. I owe a very special thanks to Norah Xiao for her assistance as the 2012 co-planner. And of course, many thanks to Bill Armstrong, who provided much needed support to me. Susan Mark [2013 DCHE Chair elect and Luti Salisbury [2013 DCHE co-planner] got their feet wet by assisting with a lot of the last minute activities. Ted Baldwin, as Professional Development, always schedules informative and successful CE course, and this year was no exception. The instructors for this year were Judith Currano, Sue Cardinal, Dawn French, and David Bacino who taught three separate courses. We had good attendance at all courses and are looking forward to another set of outstanding CE courses in San Diego!

We also wish to thank our sponsors, without whom the conference would not be possible. We value our partnership with them, both at the event and throughout the year. It's DCHE's mission to improve the production and dissemination of chemical information through sharing ideas, problems, and solutions. We could not do this without the assistance from our sponsors. Our generous sponsors for this year's conference were: ACS Publications, RSC Publishing, Elsevier – Reaxys, Global Language Translations and Consulting, Inc., and IHS.

While I enjoyed catching up with friends and colleagues, I especially liked meeting new Chemistry Division members at our Newcomer's Luncheon. Wasn't it fun to share the abundance of delicious tapas at [Mercat a la Planxa](#)? Mindy Peters is our newly appointed Membership chair and was instrumental in arranging this special afternoon for us. ¡muchas gracias, Mindy! Again

this year, Denise Callihan, organized a conference-buddy program. Those of us who participated had fun getting to know a first-timer. I'm looking forward to meeting another buddy in 2013.

And speaking of Denise Callihan all DCHE members should be proud that we have a [Rose Vormelker award](#) winner in our division. This award is presented to an SLA member for beyond exceptional services in area of mentoring students or working professionals. Denise, I was excited to see you on stage receiving this grand award. You're such an inspiration to all of us. DCHE certainly benefits from your mentoring work.

One person I'd like to introduce to all is Kristin Briney, PhD, winner of the [Marion E. Sparks award](#). The Sparks award is presented to a student or new member and is intended to encourage their participation in DCHE activities. Kristin is a recent graduate of the University of Wisconsin – Madison and has a deep interest in research data management. Because data management is important to chemistry, I'm sure we will hear much from Dr. Briney in the future.

Our sincere thanks go to Andrea Twiss-Brooks and other members of the University of Chicago. They provided an excellent tour of the John Crerar and Mansueto libraries. The special attraction that everyone was eager to see in action was the robotic retrieval system. Due to Dematic North America's kind sponsorship we were able to descend five stories below the library surface and view the workings up close. What a treat! Due to this tour opportunity, Dematic asked me to put them in touch with SLA headquarters; they want to exhibit at next year's Annual Conference.

And lastly, I'm especially appreciative to the members who participated in the final wrap-up session. I hope this gave a lot of fodder to both Susan and Luti for planning next year's conference. They are well on their way to

organizing a great conference, but I'm sure they are willing to listen to your suggestions.

I'm sure I've overlooked someone to thank or something important to report – keep checking

the [DCHE website](#) for updates! The conference would not have been successful without such great volunteers. ❖

Marie Fraites-Block,
Chair, Chemistry Division
marie.fraites-block@basf.com



Chemistry Division New Members

The Chemistry Division welcomes its new members:

Many of you joined us at the SLA 2012 Annual Conference & Info-Expo in Chicago. I hope you learned a lot from your colleagues – and I hope you continue to learn a lot from SLA in the future.

Renae Baldovski, United States Steel Corp.
Munhall PA

John Kromer, Miami University
Oxford OH

Kristin Briney, University of Wisconsin-Madison
Madison WI

Danielle Lee-Muma
London ON

Carissa Brown, Mary Kay Inc.
Addison TX

Amanda Schoen, Sherwin Williams
Mentor OH

Tallie Casucci
Pittsboro NC

Karen Krasznavolgyi, PQ Corporation
Conshohocken PA

Traceyann Crawford, Ministry of the Environment
Brampton ON

Julia Weisgram, Ecolab
Eagan MN

Carol Darlington, We Buy Books
Hopeland PA

Maryann Dean, CAS
Columbus OH

Sharon Fogarty, Technical Language Services, Inc.
Las Vegas NV

Cherie Turner
Houston TX

Glenn Glasberg, Crain Communications
Akron OH

Nicole Luce-Rizzo, John Wiley & Sons
Hoboken NJ

Shu Guo, Central Michigan University
Mt. Pleasant MI

Claire Stokes, 3M
Saint Paul MN

Jessica Hadley
Roselle Park NJ

Barbara Brandys, NIH
Bethesda MD

News from the Engineering Division

Engineering Division

Pam Enrici, Chair

The objectives of the Engineering Division are to provide an association for those having an interest in library and information science as they apply to engineering and the physical sciences and to promote the use of materials and knowledge for the benefit of libraries and other educational organizations.



I was glad to see so many of you at the Annual Conference. We had almost 90 people at our annual business lunch! I think that may be a record -- at least for the last few years. If I didn't say hi, I'm saying it now. For those of you who couldn't join us this year, there are some reports in this issue that will give you a summary of what happened. I really want to take this opportunity to thank again the people who made our programs possible: Kathryn Breininger, Sabrina Tannenbaum, Bert Saul, and Susan Morley. I'd also like to say thank you for the incredible job that Barbara Williams is doing as Chair of the Aerospace Division. You've helped make my job much easier. You all did a fantastic job. Daureen Nesdill also did a contributed paper. I hope that you will start planning to attend the 2013 Annual Conference in San Diego next year. The dates are June 12-15, 2013. Penny Sympson, our Chair-Elect, will be writing about this in the next several is-

sues of *SciTech News*.

The Engineering Division election is coming up. Please watch your e-mail for the electronic ballot that will include a bio of each candidate. In addition, there have been a series of recorded webinars for the election of SLA's officers. If you haven't had a chance to look at them, please do so. SLA is also looking at restructuring dues again. Please watch for any announcements and read them carefully.

My column is short this time because I want you to read the summaries of some of our sessions. There were other sessions that we co-sponsored, so check out reports from the other divisions that contribute to *SciTech News*.❖

Pam Enrici, Chair
penrici@d.umn.edu

2012 Engineering Division Awards

The Engineering Division was pleased to present the following awards during the Engineering Division Luncheon & Business Meeting, held Monday July 16 in Chicago, IL.

James Blank is the recipient the of the *2012 SLA Engineering Librarian of the Year Award*. This \$1500 award sponsored by I.H.S., highlights the accomplishments and contributions of SLA Engineering Division members to the engineering librarian profession



[photo taken by Kavita Rao]

James Blank is a Technical Knowledge Specialist in the engineering library at Caterpillar Inc. Since joining Caterpillar in 2000, James responsibilities have included many library functions, such cataloging, acquisitions, collection development, and website administration. He currently has responsibility for performing in-depth research, administering access to industry standards, and serving as a knowledge management steward, among other duties.

Since earning his MS in 1997, James has been actively engaged with the Graduate School of Library and Information Science (GSLIS) at the University of Illinois, including mentoring students in the Alternative Spring Break program, partnering with faculty for research related to projects at Caterpillar, and being engaged with peers through the GSLIS Corporate Roundtable.

James has a Bachelor's and a Master's degree in Political Science from Illinois Wesleyan University ('92) and Illinois State University ('96), respectively. After a brief detour into law school, James found his right path again and entered graduate school, with plans to become an academic librarian. Unexpectedly, and to his continued delight, he ended up in an engineering library at a corporation and has never looked back.

Active in his home community of Atlanta, Illinois (pop. 1635), James is Secretary/Treasurer of the Atlanta Historic Commission, a tour guide at the Hawes (Grain) Elevator National Historic Site, and a 'Keeper of the Clock' (1904 Clock Tower).

Li Zhang is the recipient the of the *2012 IEEE Continuing Education Stipend*. This \$1000 travel stipend sponsored by IEEE, is awarded to Engineering Division members attending any Continuing Education course offered at the annual SLA conference.



Li Zhang is currently working as a Reference Librarian/Science Subject Specialist at Mississippi State University Libraries. She graduated from the University

of South Florida with Master's degrees in Instructional Technology and Library and Information Science. At Mississippi State University Libraries, she participates in various activities of the Reference Department, providing research assistance to patrons, particularly for faculty and students in the science and engineering disciplines, teaching course-related library instruction classes, and many more. She is actively involved in professional organizations.

Melanie A. Sturgeon is the recipient the of the *SPIE Digital Library Student Travel Stipend Award*. SPIE Digital Library sponsors this \$1200 travel stipend award for Engineering Division library school student members attending the annual Special Libraries Association conference.



Melanie A. Sturgeon is finishing her MSLS at the University of North Carolina - Chapel Hill. She has spent the previous 14 years as a mechanical engineer, with a BS and MSE. Currently, she works as an en-

gineer at IBM while balancing school and two part-time library graduate assistantships at the reference desk at UNC and in the learning commons at NCSU. Her goal is to combine her engineering education and experience with her new library science and information literacy skills as a librarian in an academic or corporate environment.

Melanie grew up in Michigan and received a BS in Engineering Graphics & Design at Western Michigan University and an MSE in Mechanical Engineering at Grand Valley State University. She has been working as a mechanical design engineer for almost 14 years in a variety of industries, including furniture, automotive and electronics.

After moving to North Carolina, Melanie decided to volunteer at a public library. She soon discovered that she loved working at a library, and that the top ranked school for library science was just down the road at the University of North Carolina.

It seemed like fate, and soon Melanie was taking classes part time while continuing her day job as a mechanical engineer at IBM. As she progressed through the program she realized that she really enjoyed helping people find information and started working part time in the research and instructional services department at UNC's Davis library and the research and informational services department at NCSU's DH Hill library.

All of this experience has Melanie excited about the future of libraries and the prospect of a career in an academic or corporate library where she could utilize her engineering background and information literacy skills.

Melanie is also very interested in art, travel and hiking. Her perfect vacations are divided between a city with a lot of museums and libraries to visit and a nearby national or state park to explore. ❖

News from the Aerospace Section

Aerospace Section

Barbara Williams, Chair

The Aerospace Section of the Engineering Division encourages communication and cooperation among information professionals concerned with aerospace, aeronautical and related technologies. In addition, it fosters dialog with entities such as NASA, the AIAA and other important sources of technical data and bibliographical services.



Seems hard to believe that the Special Libraries Association's (SLA) 2012 annual conference has come and gone. Making new acquaintances, frequenting Chicago landmarks, and gaining career-enhancing strategies from presentations, conversations and vendor interactions have all served to create lasting memories. Those of us who were scheduled to fly back to the east coast on the last day of the conference received an extended stay courtesy of Mother Nature. The current trend seems to be for exhibitors to close up shop a day before the conference ends, which makes for marathon vendor visiting. I am all ready looking forward to the 2013 SLA Conference, which will be held in San Diego, California from June 9th – 11th.

Thanks to Adrienne Washburn past chair, for volunteering to take the minutes during the business meeting. 25 people attended the 2012 annual Aerospace breakfast & business meeting, which the American Institute for Aeronautics and Astronautics (AIAA) exclusively sponsored. Unfortunately the caterers served us the wrong breakfast, so we feasted on pancakes, pastries and fruit, and we were given tiny little plates to eat off, as you can imagine we all had quite a chuckle over the breakfast glitch. I am pleased to report that thanks to Caroline Rives, SLA's event manager, the Aerospace section has been credited for the small hiccup we encountered.

To tie in with the Aerospace section's mid-morning program, Mobilizing the Message: It takes a village to recruit creative problem solvers, breakfast attendees were asked to construct definitions that contained no more than five words for Aeronautics, and for Astronautics. Attendees were divided into four tables, the 4th table was comprised of the mid-morning speakers, an AIAA representative and a first time SLA attendee, who all served as judges. Well that's how it was supposed to be but a little birdie informed me that the table deferred to the lone Aerospace professor amongst them. For

those of you looking for succinct definitions to impart to the general public about our specific fields feel free to use our established definitions. Aeronautics studies the mechanics of air, while Astronautics studies the mechanics of space beyond the earth's atmosphere, and Aerospace is the umbrella that covers both terms.

During the business meeting we shared reasons why one might want to consider volunteering for the 2014 Aerospace Chair-elect position. Several reasons presented were: There are lots of people available to help you; Great way to develop new skills in a safe environment and Money is available to defray the cost of attending conferences. During announcements, Roger Williams announced that AIAA plans to launch their new electronic library called Aerospace Research Central (ARC) on August 23rd; ARC will be hosted on the Atypen Literatum Platform. Also shared was a bit of trivia regarding the Aerospace section, did you know that in 1968 we had over 300 members? Our current membership stands at 81.

Of course the highpoint of the breakfast was the awarding of the *George Mandel Memorial Award* to Mary Whitaker from The Boeing Company in Seattle, Washington. Mary is the current Treasurer for the SLA Engineering Division and is highly regarded and respected among her colleagues and peers. Mary gave an eloquent speech, thanking Dr. Mandel for his continued support of this award in honor of his father who died 23 years ago. Many thanks as well to AIAA for their financial



contributions, and the George Mandel Memorial selection committee, which consisted of Andrea Davis from the Dudley Knox Library, and the Naval Postgraduate School; Gale Harris, recipient of the 2011 George Mandel Award; Etna Paulson from NASA Center for AeroSpace Information; and Adrienne Washburn from Lockheed Martin Aeronautics Company.

The Aerospace section's session, Mobilizing the Message: It Takes a Village to Recruit Creative Problem Solvers, was very informative. The session's objective was to make the case that it takes a village to help spread the word about what engineers do. We want what engineers do, and the contributions they make to society as universally understood as what doctors, lawyers, and teachers do. The purpose of the session was to begin a dialog for developing strategies for helping the public, particularly young people, understand what the various engineers do and showcasing the types of career paths available. The program consisted of two presenters.

Dr. Jeffrey Hoffman, Professor of the Practice of Aerospace Engineering in the Department of Aeronautics and Astronautics at MIT is the director of the Massachusetts Space Grant Consortium. He is responsible for statewide space-related educational activities designed to increase public understanding of space, and to attract students into aerospace careers. Professor Hoffman who started his professional career in astronomy, walked us through his transition from astronomer to engineer, and discussed the attributes common to all of the engineering disciplines. He spoke about the passions that drive engineers and of strategies that spark interest in youth. Dr. Hoffman examined the supposition that students go into engineering because they love math and science as opposed to becoming good in those subjects because they are the tools required to explain the type of problems they are interested in solving.

Gail Dundas, Director of Education & Workplace in Intel's Global Communications Group in Oregon summarized the findings from Intel's "Survey of Teens' Perceptions of Engineering" research that shows high school students are not familiar with what engineers do. Employed at Intel for nearly 15 years Mrs Dundas explained some of the outreach efforts that Intel is involved in to spread the message about what engineers do, and the impact engineers can and do have on society. Intel is a worldwide brand whose vision is to create and extend computing technology to connect and enrich the lives of every person on earth. Intel's Global Communications Group helps define and communicate the strategies worldwide that will bring that vision to life. According to Gail, who holds a Master's Degree in Communications Management, her most rewarding experience has been the shift in awareness by the general public of Intel's positive role in engaging youth in math and science, which she spoke about extensively.

Moving the Aerospace section's session from Monday to Wednesday saw a dramatic decrease in attendance, we only had 30 attendees nevertheless the program was awesome. After the speakers made their presentations there was a lively discussion between the speakers and the attendees. Hopefully the discussion on this topic will continue at individual attendee's organizations, since we are the village that needs to help spread the message. The message we want to spread is that collectively as information providers we are in a position to assist the public with understanding what the various areas of specialization within Engineering does. IEEE Xplore Digital Library was a major contributor of this program and there continued support is much appreciated. ❖

Barbara Williams, Chair
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Science Today in Verse

Hope Leman, Samaritan Health Services



I am feeling somewhat blue
'Cause seals are dying of the flu
That is sad and what is more
It's of a type not seen before
And with Ebola you must make
Efforts never hands to shake
And always keep oneself quite clean
Or find yourself in quarantine
Turbines near the habitats
Of various kinds of birds and bats
Have an effect on birds adverse
(And that on bats is even worse)
Drug users, shows evidence,
Have screwed-up brains, which does
make sense
Patterns of wounds and injuries
Studied now for centuries
Suggest humankind has not
Been as kind as we had thought
Life appears to have been quite dull
Without a break to smash a skull
A new drug has made some mice
Thinner, which is very nice
But may not get to you or me
For going on eternity
It is more probable than not
For cops not to notice pot
As preoccupied, they tend to think
You are speeding due to drink
Bowhead whales sing like birds
Wake me up when they use words❖

Beyond the Chemistry Web

Bob Buchanan, Chemistry Librarian, Auburn University



In **Letters to a Young Librarian** Jessica Olin, a veteran librarian of nine years, gives advice to library school students and recent graduates. One of her goals is to address practical topics that are not taught in library school. Although aimed at students, this blog deserves a wider audience, if for no other reason than to see if it matches your perspective on the profession. Guest writers also contribute content which makes this good blog an even better one.

<http://letterstoayounglibrarian.blogspot.com/>

Hiring Librarians is a new blog that provides a forum for those who make hiring decisions in libraries to explain the reasoning behind their decisions. It covers all types of libraries and library operations with unusual frankness. Most of the blog entries are one person's responses to a set of standard questions. Other entries are the responses by blog regulars to a single question such as "Would you hire someone with an MLS for a paraprofessional position?" Take a look soon – this blog may not live long as its anonymous author is currently looking for a library position.

<http://hiringlibrarians.com/>

Google Scholar has made a few changes recently. It is much easier to limit by date (last year, two years, five years, and custom range) while still sorting results by relevancy. A new link called "recent additions" sorts items recently added in reverse chronological order. The default for "recent additions" is to search only article abstracts. This appears to give fewer results than expected – look for the "full text" tab to search everything. Neither option quite duplicates a reverse chronological sort, but Google Scholar is getting closer. The advanced search is still available but it is hidden in the triangle on the right edge of the search box. The Metrics link in the upper left lists the top journals as measured by yet another publication evaluation index – the h5-index (limited to the past 5 years). Currently, only the top 100 journals are listed which greatly lessens its potential value.

<http://scholar.google.com/>

Jeffery Beall maintains the blog **Scholarly Open Access: Critical analysis of open-access publishing**. This site also provides a list of "questionable, scholarly open-access publishers".

<http://scholarlyoa.com>

Looking for OA promotion material? William Jacobs and Chris Erdman have created a brief **OA Guide** to help faculty evaluate their publication options. The guide includes a link to a downloadable Creative Commons version for Microsoft Word.

<http://scitech.sla.org/pr-committee/oaguide/>

The **ACRL Scholarly Communication Toolkit** provides extensive educational material for librarians to "support advocacy efforts designed to transform the scholarly communication landscape." Use the tabs at the top of the page to access handouts, presentations, publications, websites, and videos on several topics: author's rights; digital repositories; journal economics; and what you can do. The materials in the toolkit can be used under a Creative Commons attribution/no-commercial-use/share-alike license.

<http://www.scholcomm.acrl.ala.org/>

Open Access Publishing Issues is an up-to-date web page created by the Department of Chemistry at University of Oxford. It is the sort of useful, lightly annotated page that used to be common in academia before branding took over. In addition to background links on open access publishing and scholarly communication issues this site includes sections on publisher initiatives and policies, chemistry open access journals, and initiatives undertaken in the UK, other countries, and internationally.

<http://www.chem.ox.ac.uk/cheminfo/openaccess.html>

The **Directory of Open Access Journals** is a good place to identify open access scientific and scholarly journals in a variety of disciplines.

<http://www.doaj.org/doaj?func=home&uiLanguage=en>

One-fifth of American adults have read an e-book in the past year. Who is reading e-books? What are they reading? How often do they read?

The Rise of E-Reading presents the results of polling research from the Pew Internet & American Life Project. Although the effect of e-books on libraries and the expectations they create were not examined, this 68-page report written in 2012 should interest all librarians. Some of the results may be surprising.

<http://libraries.pewinternet.org/2012/04/04/the-rise-of-e-reading/> ❖

Sci-Tech Book News Reviews Susan Fingerman, Selector



The following section consists of 100 book reviews selected from *Sci-Tech Book News*, reprinted with the permission of Book News Inc. This review journal is published four times a year, each issue reviewing over 2,000 new titles in the physical and biological sciences, mathematics, engineering, computer science, technology, and agriculture. For a sample issue and subscription information, contact Book News Inc. at 5739 NE Sumner Street, Portland, OR 97218. Phone: (503)281-9230; Fax: (503)287-4485; E-mail: booknews@booknews.com.

GEOGRAPHY

G70 9780819487872

Hyperspectral remote sensing.

Eismann, Michael Theodore.

SPIE, ©2012 725 p. \$135.00

Eismann, a researcher in electro-optical and infrared technology, hyperspectral remote sensing, and optical information processing who is associated with the Air Force Research Laboratory and teaches at the Air Force Institute of Technology, provides students with a textbook on hyperspectral remote sensing that focuses on its physical principles as opposed to applications. He describes spectroscopic principles from the perspectives of classical electromagnetic theory and quantum mechanical theory, spectroscopy from the standpoint of measured spectral properties, remotely sensed spectral radiance, and imaging system, dispersive spectrometer, and Fourier transform spectrometer design and analysis, as well as additional designs, imaging spectrometer calibration, atmospheric compensation, spectral data models, and hyperspectral image classification and target detection.

changes with the aid of multisource remote sensing data in a poorly gauged watershed, multispectral satellite data for monitoring floods and mapping inundation, radar polarimetry for estimating rain, and microwave vegetation indices from satellite passive microwave sensors for mapping global vegetation cover.

HA31 9781849208123

Designing & doing survey research.

Andres, Lesley.

Sage Publications, ©2012 197 p. \$99.95

In this accessible guide for senior undergraduates and graduate students, small business owners, and institutional researchers, Andres (educational studies, U. of British Columbia) explains how to design questions for survey research and how to conduct different types of survey research, adding a touch of humor with b&w cartoons. Chapters cover mapping out the survey research process, conceptualizing the survey research study, survey formats, developing questions, sampling theory and practice, validity, administering surveys, and data analysis. Learning features include chapter summaries, exercises, and ethics alerts. The book is illustrated with b&w screenshots and surveys.

HYDROLOGY, OCEANOGRAPHY

GB656 9781439877456

Multiscale hydrologic remote sensing; perspectives and applications.

Title main entry. Ed. by Ni-Bin Chang and Yang Hong.

CRC Press, ©2012 550 p. \$129.95

Civil and other engineers synthesize research over the past decade or so into how climate change could interrupt the hydrologic cycle on varying scales and endanger the structure, function, and services provided by aquatic ecosystems. More specifically, they are concerned with how hydrologic observatories may be adequately configured to overcome barriers when collecting necessary feedback within the constrained hydrologic system at multiple scales. They consider hydrological remote sensing at the local, urban, watershed, regional, and continental and global scales. Among the topics are advanced ground-penetrating radar for soil moisture retrieval, modeling stream flow

HV8073 9780470749067

Infrared and Raman spectroscopy in forensic science.

Title main entry. Ed. by John M. Chalmers et al. *John Wiley & Sons*, ©2012 618 p. \$190.00

Scientists mostly in Britain introduce novice and established spectroscopic practitioners of analytical chemistry to the technical elements of Raman and infrared spectroscopy as applied in various areas of forensic science. After explaining the principles underlying the technology, they combine overviews and case studies relating to crime scenes, counter-terrorism and homeland security, drugs of abuse, archaeology and mineralogy, and pharmaceuticals and other consumer products. The topics include vibrational spectroscopy sampling techniques, the forensic analysis of hair by infrared spectroscopy, the non-invasive detection of concealed liquids and powder explosives using spatially offset Raman spectroscopy, studying manuscripts by vibrational spectroscopy, Raman spectroscopy of ceramics and glasses, and infrared spectroscopy for detecting adulteration in foods.

HV8074 9781439871409

The neuroscience of handwriting; applications for forensic document examination.

Caligiuri, Michael P. and Linton A. Mohammed. (International forensic science and investigation series)

CRC Press, ©2012 247 p. \$139.95

At a time when the validity and reliability of document examination is being closely scrutinized, Caligiuri (psychiatry, U. of California San Diego) and Mohammed, a forensic document examiner, explore the neuroscientific principles of normal and pathological hand motor control and handwriting for forensic documentation examination and legal professionals and researchers and discuss relevant theory and practice with examples from recent studies. They provide background on the fundamentals of motor control, with reference to handwriting; the fundamental principles of neuroanatomy and neurochemistry of hand motor control; theories of motor control and their application to handwriting research; common neurodegenerative diseases and their epidemiology, pathophysiology, and motor characteristics; common psychotropic medications for depression, bipolar disorder, and psychosis, their mechanisms of action, and why they are important in understanding motor behavior and handwriting; and the effects of the aging process on motor control and handwriting. The second section covers advances in the quantitative approach to signature authentication, mainly the kinematic approach to genuine, disguised, and forged signatures, and presents data from the authors' studies that tested specific hypotheses about whether a signature is authentic or forged, followed by a final section outlining their studies on the effects of medication and disease on handwriting, including progressive supranuclear palsy, neurological diseases, psychotropic medications, and substance abuse.

SCIENCE (GENERAL)

Q141 9781412976886

Leadership in science and technology; a reference handbook; 2v.

Title main entry. Ed. by William Sims Bainbridge. Sage Publications, ©2012 928 p. \$325.00

This thoughtfully organized handbook addresses a topic that draws from numerous disciplines and is garnering increased attention as a discipline in itself. The first of the two volumes begins with an introductory essay. Following are 50 contributed chapters arranged in sections on scientific approaches (e.g. anthropology, cognitive science, economics, futures studies, political science, network science, and social psychology); key concepts (controversies, group processes, research groups and misconduct, among other topics); contexts (fallibility and authority, moral exemplars, multicultural teams, among others); and tactics and tools (e.g. simulation, creative cognition, followership, gatekeeping, management tools for innovation). The second

volume comprises 50 case studies pertaining to an extraordinary range of contexts including artificial intelligence, science fiction, data-intensive astronomy, Polar research, the Apollo project, harpsichord makers, environmentally compatible textiles, educational games, and undergraduate biology education--to name just a few. Editor Bainbridge taught sociology in universities for 20 years then joined the National Science Foundation where he directs the program on human-centered computing. He authored more than a handful of the chapters and brought together 123 contributors affiliated with academic institutions, government agencies, and private industry in at least half dozen countries.

Q223 9781439854792

Clear and concise communications for scientists and engineers.

Speight, James G.

CRC Press, ©2012 200 p. \$59.95 (pa)

For scientists and engineers at every level of education, Speight offers advice on presenting their ideas in a clear, understandable, and logical manner. The goal, he says, is for listeners of oral presentations or readers of journal articles or company reports to be able to discuss the matter with peers. He considers such matters as types of scientific and engineering writing, appearance and physical layout, preparing to write, teamwork, technical presentations, and correspondence.

Q387 9783037853689

Intelligent system and applied material; proceedings; 2v.

Int'l Conference on Intelligent System and Applied Material (2012: Taiyuan, China) Ed. by Wu Jinhui et al. (Advanced materials research; vs.466-467)

Trans Tech Publications, ©2012 1445 p. \$414.00 (pa)

Arranged in two volumes, this collection represents the proceedings of the International Conference on Intelligent System and Applied Material, held in Taiyuan China in January 2012, showcasing current scholarship in a wide variety of subject areas relating to materials science and engineering. The articles in volume one are divided into sections covering material sciences and manufacturing processes, while volume two continues with additional essays on manufacturing technologies such as robotics, civil engineering and infrastructure construction, intelligent transport system hardware, and servo-motor design. Individual papers include keyword lists, abstracts, illustrations, tables, bibliographies and notes, and the complete set is indexed by both author and keyword. Contributors are academics and industry researchers from primarily Chinese institutions and firms.

MATH, COMPUTERS

QA76 9780123852410

The UX book; process and guidelines for ensuring a quality user experience.

Hartson, Rex and Pardha S. Pyla.

Morgan Kaufmann Pub., Inc., ©2012 937 p. \$89.95

This textbook on front end computer programming provides designers and programmers with practical information on the design of user interfaces that definitively enhance the user experience (UX). Topics discussed include general principles of UX design; contextual analysis; constructing design-informing models; UX goals, metrics, and targets; rapid evaluation methods; UX methods for agile development processes; and integration with general software engineering. Chapters include clear objectives, color illustrations, case studies, interviews with practitioners, and chapter exercises. Harston is a UX consultant and Pyla is a senior UX specialist with a mobile software development firm.

QA76.54 9780769546674

Real-time and embedded technology and applications; proceedings.

IEEE Real-Time and Embedded Technology and Applications Symposium (18th: 2012: Beijing, China)

Computer Society Press, ©2012 330 p. \$194.00 (pa)

The symposium returns to Asia after 11 years, and continues to shift its emphasis from basic science to applications and systems. The 30 papers cover resource management and scheduling, real-time architectures for memory storage and caches, real-time systems with temperature constraints, hard-wired/soft-wired codesign, real-time applications, models and analysis methods for real-time architectures, real-time operating systems and tools, wireless sensor networks, energy efficient designs, and designing efficient task models. There is no subject index.

QA76.575 9781439830864

Multimedia image and video processing, 2d ed.

Title main entry. Ed. by Ling Guan et al. (Image processing series)

CRC Press, ©2012 769 p. \$149.95

Guan (multimedia and computer technology and electrical and computer engineering, Ryerson U., Canada) et al. bring together 28 chapters (21 new in this edition) that explore recent developments in multimedia research and applications, for researchers, educators, undergraduate and graduate students, and engineers. They cover standards, including video, still image, and audio coding, multimedia interface, and multimedia framework; fundamental methods for histogram processing, image enhancement, and feature extraction and classification; the design of an efficient application-specific multimedia architecture; the typical architecture of a multimedia information mining system; recent methods in multimodal information fusion

and the strength and weaknesses of different fusion levels; and bidirectional, human-to-computer and computer-human, affective interaction techniques. Subsequent sections address the coding of video and multimedia content; multimedia search, retrieval, and management; security, including multimedia forensics and biometrics, biometric systems and techniques for measuring system performance, watermarking and fingerprinting, and content-based fingerprinting; communications and networking; the architecture design and implementation for image and video processing; and systems and applications, such as a mixed-reality environment for learning and a Second Life HugMe prototype system that bridges the gap between virtual and real-world events.

QA76.76 9781611972061

The art of differentiating computer programs; an introduction to algorithmic differentiation.

Naumann, Uwe. (Software, environments, and tools)

SIAM, ©2012 340 p. \$93.00 (pa)

Naumann (computer science, Rhenish-Westphalian Technical U. Aachen, Germany) describes a set of techniques for modifying the semantics of numerical simulation programs, such that the desired first and higher derivatives can be computed accurately and efficiently. Because computer programs implement algorithms, the process is called algorithmic differentiation. He covers first derivation code, higher derivation code, an introductory tutorial on derivative code compilers, and a prototype derivation code compiler. Chapter-end exercises are provided, with hints on solutions in the back matter. The supplemental website contains sources of all the software he discusses, further exercises and comments on their solutions, links to other sites, and errata.

QA76.76 9781118104354

Case study research in software engineering; guidelines and examples.

Runeson, Per et al.

John Wiley & Sons, ©2012 237 p. \$69.95

Software engineers and computer scientists at Lund University in Sweden and the University of Hertfordshire in England share their experience of adapting case study methodology from other fields and applying it to software engineering. They describe the methodology, but--not surprisingly--find the best way to explain the case study approach is with case studies. Their topics include designing the case study, data collection, scaling up case study research to real-world software practice, a case study of extreme programming in a stage-gate context, and a large-scale case study of requirements and verification alignment.

QA76.76 9781466601499

Handbook of research on serious games as educational, business and research tools; 2v.

Title main entry. Ed. by Maria Manuela Cruz-Cunha.

Information Science Reference, ©2012 1429 p. \$480.00

Arranged in two volumes, this collection of articles on gaming, presents sixty-three essays showcasing current scholarship in the use of games and game processes in the development of educational tools, business data acquisition processes, and health and health care improvement programs. Volume one covers topics relating to game technology as learning tools, technological aspects of serious games, psychological and social effects of gaming, and applications for business. Volume two covers game applications in education, games in research and development programs, gaming and the defense industry, and applications in e-health and health care. Individual essays include abstracts, illustrations, tables, bibliographies, and notes, and a publication wide compilation of reading resources is provided. Contributors are academics in computer and behavioral sciences from institutions around the world.

QA76.9 9781466616493

Anonymous security systems and applications; requirements and solutions.

Tamura, Shinsuke.

Information Science Reference, ©2012 251 p. \$195.00

Tamura (engineering, U. of Fukui, Japan) discusses the requirements for anonymous security technologies designed to obscure the identities of users and the fundamental security components such as encryption functions and digital signatures. He then discusses schemes for protecting data owned by anonymous entities from illegitimate modifications, deletions, and additions, as well as schemes for exchanging messages without disclosing identities of senders or receivers to others and calculating aggregate values of data without knowing their individual values. The last section covers anonymous authentication systems and electronic payment, electronic procurement, and electronic governance systems (e-voting).

QA76.9 9781118027806

Cyber security policy guidebook.

Title main entry. Ed. by Jennifer L Bayuk et al.

John Wiley & Sons, ©2012 270 p. \$89.95

Bayuk, a cybersecurity consultant who teaches at Stevens Institute of Technology, et al. examine current organizational cybersecurity policy issues, for students, scholars, executive advisors, educators, researchers, legislative staff, practitioners, and technical decision makers. They integrate explanations of policy across executive, legislative, judiciary, commercial, military, and diplomatic areas, and describe the relationship between cyberspace, cybersecurity, and policy; the history and domains of cybersecurity; the

state of practice in measurement, with case studies of e-commerce, industrial control systems, and personal mobile devices; guidance for decision makers on establishing a strategy and policy and their integration with the organization's mission and purpose; a catalog of various issues in governance, users, conflict, management, and infrastructure and specific policies and explanations; the environment faced by decision makers; efforts by the US government to align cybersecurity strategy and policy; and the impact of historical events.

QA76.9 9781439869468

Foundations of predictive analytics.

Wu, James and Stephen Coggeshall. (Chapman & Hall/CRC data mining and knowledge discovery series)

CRC Press, ©2012 317 p. \$89.95

Both with a San Diego company, Wu and Coggeshall summarize techniques of data analysis and modeling that they have encountered and used during their two decades each in applied data mining across many different fields. They provide the information necessary to understand the common techniques for exploratory data analysis and modeling, and explain details of the algorithms behind these techniques, including underlying assumptions and mathematical formulations. Among their topics are properties of statistical distributions, linear modeling and regression, time series analysis, preparing data and selecting variables, and optimization methods.

QA76.9 9780123869791

Practical text mining and statistical analysis for non-structured text data applications. (DVD-ROM included)

Miner, Gary et al.

Academic Press, ©2012 1051 p. \$79.95

The underlying premise is that almost all data in databases takes the form of unstructured text, or summaries of unstructured text, and that historians, marketers, crime investigators, and others need to know how to search that text for meaningful patterns--a very different process than reading. Contributors in a range of fields share their insights and experience with the process. After setting out the principles, they present tutorials and case studies, then move on to advanced topics. Academic Press is an imprint of Elsevier.

QA76.9 9781466609549

Speech, image, and language processing for human computer interaction; multi-modal advancements.

Title main entry. Ed. by Uma Shanker Tiwary and Tanveer J. Siddiqui.

Information Science Reference, ©2012 372 p. \$195.00

The first section of this volume surveys user modeling techniques for human-computer interaction (HCI), categorizes HCI architectures according to cognition, and compares interactive cognitive models of the cooperative design environment. The second section collects

methods for speech, image, and language processing for multimodal interaction while the final section describes multimodal interfaces. Topics of the 15 papers include digital audio spatialization, Hindi speech recognition from visual cues, multi-finger gesture recognition and classification, HCI for enhanced metasearching, and automatic speech analysis for evaluating speech disorders.

QA521 9781466601130

3-D surface geometry and reconstruction; developing concepts and applications.

Title main entry. Ed. by Umesh Chandra Pati. *Information Science Reference*, ©2012 383 p. \$195.00

Contributors from computer science, mechanical engineering, information science, psychology, and other disciplines explain techniques for modeling three-dimensional objects for human vision; earlier techniques only had to make the model accurate enough that robots and computers could recognize it. The topics include projective geometry for the three-dimensional modeling of objects, the three-dimensional reconstruction of underwater natural scenes and objects using stereo vision, image-based three-dimensional modeling and rendering from single-view perspective images, surface modeling using discrete basis functions for real-time automatic inspection, and detecting and reassembling three-dimensional complementary fragments.

ASTRONOMY

QB51 9781439841730

Advances in machine learning and data mining for astronomy.

Title main entry. Ed. by Michael J. Way et al. (Chapman & Hall/CRC data mining and knowledge discovery series)

CRC Press, ©2012 698 p. \$99.95

Scientists from all three disciplines look across the border at the others to discuss foundational issues; astronomical applications in source identification, classification, signal processing (time-series) analysis, and the largest data sets; and machine learning methods. The topics include probability and statistics in astronomical machine learning and data mining, the sky pixelization for cosmic microwave background mapping, database-driven analyses of astronomical spectra, the virtual observatory and distributed data mining, and randomized algorithms for matrices and data.

QB466 9783527410378

Relativistic jets from active galactic nuclei.

Title main entry. Ed. by Markus Boettcher et al. *Wiley-VCH*, ©2012 406 p. \$135.00

Much remains unknown about extragalactic jets, such as what they are made of and how they are launched, accelerated, and collimated; some observational evidence is available and some theories have been devised, but they do not fit together very well. Nevertheless, specialists have compiled what is known into a reference

and inspiration for graduate students, teachers, and researchers who are interested in active galactic nuclei and their relativistic outflows. After an introduction and history, they look at theory basics, phenomenology, and particle acceleration in turbulent magnetohydrodynamics shocks.

PHYSICS

QC20 9781420086126

Understanding physics and physical chemistry using formal graphs. (CD-ROM included)

Vieil, Eric.

CRC Press, ©2012 799 p. \$159.95

Vieil, a researcher in physical chemistry with the French Alternative Energies and Atomic Energy Commission (CEA) in Grenoble, presents a universal tool kit--Formal Graphs--for understanding a wide range of scientific domains. A Formal Graph is another way to write equations, he says, that differs from algebra by drawing relationships instead of writing them, and by involving the notion of order--topology to be precise. He writes mainly for graduate students, researchers and specialists, and engineers; the process itself would even be accessible to undergraduate students, but the book uses some notions that undergraduates will not have studied yet. The disk contains all the graphs, in color bitmap files, and software for building simple electric circuits and translating them into Formal Graphs.

QC173 9780762434343

The dreams that stuff is made of; the most astounding papers on quantum physics--and how they shook the scientific world.

Title main entry. Ed. by Stephen Hawking.

Running Press, ©2011 1071 p. \$30.00

Hawking (theoretical cosmology and mathematics, U. of Cambridge) brings together the most paradigm-shifting works on quantum physics in the 20th century, giving insight into how each selected paper shattered previous scientific understanding of Newtonian physics and, in time, created entirely new frameworks by which to understand the nature of matter, quantum mechanics and subatomic particles. The first time they have been presented together, papers from luminaries such as Bohr, Plank, Heisenberg, Born, Schrodinger, Feynman and Einstein are sorted into groupings by the concepts they address and prefaced by an introduction by Hawking examining the concepts, their context and revolutionary qualities. Surprisingly readable and thoughtfully curated, Hawking delivers his customary clarity and infectious sense of wonder.

QC176 9781439869321

Magnetic nanoparticles; from fabrication to clinical applications.

Title main entry. Ed. by Nguyen T.K. Thanh.

CRC Press, ©2012 584 p. \$189.95

Biomedical engineers, along with scientists toward the engineering and physical science side and toward the biology and medicine side, examine magnetic nanoparticles and the applications in health care. Their topics include synthesizing and characterizing iron oxide ferrite nanoparticles and ferrite-based aqueous fluids, the functionalizing magnetic iron oxide nanoparticles, separating and characterizing magnetic particulate materials, putting therapeutic nanoparticles where they need to go by magnet systems design and control, and surgical magnetic systems and tracers for cancer staging.

QC176 9780470669372

Solid state proton conductors; properties and applications in fuel cells.

Title main entry. Ed. by Philippe Knauth and Maria Luisa Di Vona.

John Wiley & Sons, ©2012 410 p. \$180.00

International contributors describe the latest work on characterization techniques, modeling, and physical and chemical properties of solid state organic and inorganic proton conductors. Coverage encompasses morphology and structure of solid acids, structure and diffusivity in proton-conducting membranes studied by quasielastic neutron scattering, broadband dielectric spectroscopy, and mechanical and dynamic mechanical analysis of proton-conducting polymers. Also covered are *ab initio* modeling of the transport and structure of solid state proton conductors, perfluorinated sulfonic acids as proton conductor membranes, proton conductivity of aromatic polymers, and inorganic solid proton conductors. The book includes color and b&w diagrams and images on every page. Knauth is affiliated with Aix-Marseille University, France. Di Vona is affiliated with the University of Rome Tor Vergata, Italy

QC446 9781439845479

Nonlinear optical systems; principles, phenomena, and advanced signal processing.

Title main entry. Ed. by Le Nguyen Binh and Dang Van Liet. (Optics and photonics)

CRC Press, ©2012 451 p. \$129.95

The interaction between multiple elements of an engineered system--for example capacitors, inductors, and laser fibers in an energy storage system--become so complex that nonlinear techniques are required to analyze them. Here physicists and electrical and electronic engineers treat such nonlinear systems in terms of fundamental principles and associated phenomena and their applications in signal processing in contemporary optical systems for communications and laser systems. They include a touch of mathematical representation of nonlinear equations, which provides some insight into the nonlinear dynamics at different

phases. Among the topics are soliton fiber lasers, multibound solitons, the deterministic dynamics of solitons in passive mode-locked fiber lasers, nonlinear fiber ring lasers, and nonlinear photonic signal processing using third-order nonlinearity.

QC449 9781848213449

Digital holography.

Picart, Pascal and Jun-chang Li.

ISTE/Wiley, ©2012 358 p. \$145.00

For engineers, researchers and science students at the master's level, Picart (engineering, U. of Maine, France) and Li (laser applications, Kunming U. of Sciences and Technologies, China) explain the mathematical and physical elements of digital holography. After reviewing the mathematical prerequisites, they discuss the scalar theory of diffraction, calculating diffraction by fast Fourier transform, fundamentals of holography, digital off-axis Fresnel holography, reconstructing wavefronts propagated through an optical system, and digital holography interferometry and its application.

QC454 9781118062531

X-ray photoelectron spectroscopy; an introduction to principles and practices.

Van der Heide, Paul.

John Wiley & Sons, ©2012 241 p. \$89.95

Author van der Heide (most recently, Surface Analysis Department, Samsung Austin Semiconductor) offers a detailed introduction to the field of X-ray photoelectron spectroscopy (XPS). He defines and describes key concepts and identifies examples of real-world applications. Topics include XPS instrumentation, data collection and quantification, spectral interpretation, and case studies. A number of very helpful features are included: a series of informative appendices, a technique abbreviations list, a glossary, and a question and answer section designed to measure the reader's comprehension of the text.

QC611 9780470562949

Functionalization of semiconductor surfaces.

Title main entry. Ed. by Franklin (Feng) Tao and Steven L. Bernasek.

John Wiley & Sons, ©2012 434 p. \$149.95

US and Asian chemists describe both the basic science and current applications of functionalizing semiconductor surfaces through direct molecular attachment in order to tailor the chemical, physical, or electronic properties of the surfaces. Writing for researchers and students, they consider such topics as structures of semiconductor surfaces and origins of surface reactivity with organic molecules, the chemical binding of five-membered and six-membered aromatic molecules, *ab initio* molecular dynamics studies of conjugated dienes on semiconductor surfaces, forming organic monolayers through wet chemistry, and immobilizing biomolecules at semiconductor interfaces.

QC665 9781439881545

Wide-band slow-wave systems; simulation and applications.

Title main entry. Ed. by Stanislovas Staras et al.

CRC Press, ©2012 438 p. \$79.95

A team of Lithuanian researchers explain electrodynamic, multiconductor line, and numerical methods they have developed to analyze, synthesize, and design slow-wave structures for modern electronic devices with super-wide pass-bands. Their topics include the analysis of nonhomogeneous helical systems using electrodynamic methods, calculating characteristic impedance of multiconductor lines, investigating slow-wave systems with versatile electromagnetic simulation and design tools, applying slow-wave structures to deflect electron beams, and the computer-aided design of electrodynamic delay lines. Much of the material has not been published in English before.

QC689 9783527411009

Nonlinear laser dynamics; from quantum dots to cryptography.

Title main entry. Ed. by Kathy Lüdge. (Reviews in nonlinear dynamics and complexity)

Wiley-VCH, ©2011 387 p. \$135.00

Physicists and engineers survey recent developments in the mathematical, physical, and experimental aspects of nonlinear laser dynamics. The section on nanostructured devices reviews the dynamic properties and modeling aspects of quantum dot lasers, vertical cavity surface emitting lasers, and quantum cascade lasers. A second section, on coupled laser devices, focuses on the complex dynamics and bifurcations induced by self-coupling, delay coupling, or mode coupling lasers. The final section is on synchronization and cryptography, and discusses the chaotic dynamics of excitable systems and their application for secure communication or for generating synchronized cluster states in networks.

QC787 9781608070909

RF linear accelerators for medical and industrial applications.

Hanna, Samy.

Artech House, ©2012 202 p. \$119.00

Hanna, an engineer who heads a consulting company in RF (radio frequency) engineering and has taught electrical engineering at universities, overviews the applications of RF linear accelerators and the basic concepts related to their operation. He explains the manufacturing process behind commercial accelerators to professionals like engineers, medical physicists, oncologists, and chemists, and medical and industrial applications such as cancer radiation therapy, environmental applications, the sterilization of medical products and food irradiation, wastewater treatment, and security and inspection applications, as well as the RF systems needed to run them and how they are manufactured. Electrostatic accelerators that are also linear devices are mentioned briefly,

as are some of the circular accelerators and their applications. He ends with discussion of recent developments and future trends in the technology.

CHEMISTRY

QD79 9780470467091

Applications of ion chromatography for pharmaceutical and biological products. (website access included)

Title main entry. Ed. by Lokesh Bhattacharyya and Jeffrey S. Rohrer.

John Wiley & Sons, ©2012 463 p. \$125.00

Academic researchers in biological fields and researchers with public agencies are joined by scientists from drug and electronic equipment companies to explore the current use of the imaging technology in pharmaceutical and biotechnology companies, emphasizing methods that have been developed and validated over the past two decades. After reviewing the principles, mechanism, and instrumentation, they look in turn at applications in pharmaceuticals, biotechnology, and vaccines. The topics include a new perspective on retention processes in ion-exclusion chromatography, the ion chromatography analysis of aminoglycoside antibiotics, analyzing pharmaceuticals for authenticity and adulteration, two-dimensional ion chromatography for simultaneously determining amino acids and carbohydrates, and analyzing biological products.

QD96 9780470536735

Mass spectrometry handbook.

Title main entry. Ed. by Mike S. Lee. (Wiley series on pharmaceutical science and biotechnology)

John Wiley & Sons, ©2012 1340 p. \$199.95

The handbook is intended to serve as a reference for beginners, practitioners, and experts in mass spectrometry as it is used in academic, business, and clinical laboratories. It is not intended to be comprehensive, but provides details about selected aspects of the technology. The areas covered are biotechnology/proteins, pharmaceuticals, clinical analysis, forensics, space exploration, homeland security, food analysis, environmental science, geology, archaeology, surface analysis, polymers, and analytical techniques.

QD139 9783527329243

Mass spectrometry in polymer chemistry.

Title main entry. Ed. by Christopher Barner-Kowollik et al.

Wiley-VCH, ©2012 483 p. \$160.00

Chemists explore the imaging technology and its application to characterizing polymers from such perspectives as the tandem mass spectrometry analysis of polymer structures, surface analysis and imaging techniques, automated data processing and quantification in polymer mass spectrometry, the elucidation of reaction mechanisms, and polymer degradation. Scientists in either field may be interested in the combination.

QD181 9783527325757

Monolithic silicas in separation science; concepts, syntheses, characterization, modeling and applications.Title main entry. Ed. by Klaus K. Unger et al.
Wiley-VCH, ©2011 344 p. \$155.00

Researchers in chemistry and chemical engineering, pharmaceuticals, and various medical specialties summarize the current state of monolithic silica columns for separation in high-performance liquid chromatography, as a new generation of technology is replacing the commercial devices released a decade ago. The topics include synthesis concepts and preparing silica monoliths, characterizing the pore structure, comparing the performance of particle-packed and monolithic columns, monolithic chiral stationary phases for liquid-phase enantioseparation techniques, and silica monoliths for the small-scale purification of drug-discovery compounds.

QD453 9780470889251

The physical chemist's toolbox.

Metzger, Robert M.

John Wiley & Sons, ©2012 949 p. \$165.00

In an era when over-specialization is rampant--somewhat inevitably because of advances in every field--Metzger (chemistry, U. of Alabama) has prepared this broad-coverage handbook that will no doubt serve as an important reference for years to come. The intended audience includes beginning researchers who must reconcile classroom knowledge with current problems, approaches, and techniques in research labs and who need convenient access to discipline-crossing fundamentals and current practices. Coverage encompasses particles, forces, and mathematical methods; quantum, mechanics; thermodynamics; statistical mechanics; kinetics, equilibria, and electrochemistry; symmetry; solid-state physics; electrical circuits, amplifiers, and computers; sources sensors, and detection methods; instrument; and topics pertaining to crystals and molecules. Problems of varying difficulty are interspersed throughout.

QD480 9781439840788

Molecular modeling for the design of novel performance chemicals and materials.Title main entry. Ed. by Beena Rai.
CRC Press, ©2012 382 p. \$139.95

This book describes molecular modeling techniques and details a broad spectrum of applications, from pharmaceuticals to construction. It opens with a review of molecular modeling tools, then presents three chapters dealing with the modeling of mineral-reagent interactions. Later chapters examine the application of molecular modeling tools in the creation of surfactant systems, the design of novel porous materials for improved industrial processes, the study of wettability on solid surfaces, and the use of density functional theory in hydrogen storage materials, semiconductor alloys, and cement clinker compounds. Illustrated with a wealth of color images and process diagrams, the book will be of interest to practicing

engineers and chemists. Rai is affiliated with the Process Engineering Innovation Lab at Tata Research Development & Design Center.

QD516 9780470226223

Fundamentals of turbulent and multi-phase combustion.

Kuo, Kenneth K. and Ragini Acharya.

John Wiley & Sons, ©2012 879 p. \$150.00

The subject is relevant in diverse fields including those dealing with energy, the environment, propulsion, transportation, industrial safety, and nanotechnology. Kuo (mechanical engineering, Pennsylvania State U.) and Acharya (United Technologies Research Center) offer graduate-level students coverage of the basics and the importance of turbulent and multiphase combustion followed by chapters on laminar premixed and non-premixed flames, premixed and non-premixed flames, multiphase flows with reactions, and spray atomization and combustion. This is the first of two volumes (sold separately), the second focusing on applications.

QD878 9780470746400

Supramolecular chemistry; from molecules to nanomaterials; 8v.

Title main entry. Ed. by Philip A. Gale and Jonathan W. Steed.

John Wiley & Sons, ©2012 3978 p. \$1,995.00

Fifteen years have elapsed since the predecessor to this reference was published in 1996; *Comprehensive Supramolecular Chemistry* "summarized all of the major systems studied in fields based in supramolecular chemistry since its inception in clathrate chemistry in the early nineteenth century and cation receptor chemistry in the mid-1960s" (from the preface). This eight-volume set reflects advances made since then in its content as well as its organization. Because supramolecular concepts have become integrated into and in fact underlie much of molecule-based science, the vision for this reference was to offer an integrated and interlocking series of tutorial-style articles, to aid advanced students and practitioners in finding their way to key science and techniques. Material is organized into ten sections (in eight volumes) as follows: concepts; techniques; molecular recognition; supramolecular catalysis reactivity; supramolecular catalysis chemical biology; self-assembly; supramolecular devices; supramolecular materials chemistry; soft matter; and nanotechnology. A glossary and index conclude the eighth volume. The two editors-in-chief of this important set are affiliated as follows: Philip A. Gale (U. of Southampton, UK) and Jonathan W. Steed (Durham U., UK).

CHEMISTRY

QD381 9783527323210

Supramolecular polymer chemistry.

Title main entry. Ed. by Akira Harada.

Wiley-VCH, ©2011 372 p. \$195.00

This monograph details a broad range of applications made available by scientific advances

in the burgeoning field of supramolecular chemistry, including drug delivery and catalysis. Topics are formatted in three parts: formation of supramolecular polymers, supramolecular polymers with unique structures, and properties and functions. Written by industry professionals, the book is intended for supramolecular polymer researchers, but also would interest young researchers and students. While technical, the writing is clear and well-supported by numerous high quality images and illustrations. Editor is Harada (macromolecular science, Osaka U., Japan).

QP517 9780819489739

Dictionary of biomedical optics and biophotonics.

Tuchin, Valery.

SPIE, ©2012 575 p. \$39.00 (pa)

Tuchin (optics and biomedical physics, Saratov State U., Russia) defines approximately 2,500 terms related to biomedical optics and biophotonics. The dictionary is based on his earlier book, *Tissue Optics: Light Scattering Methods and Instruments for Medical Diagnosis* and its second edition, although terms and definitions have been expanded to short articles that serve as brief introductions to biomedical topics such as acoustic wave, chemotherapy, infrared fiber, and ultra-high-resolution optical coherence tomography. The book is aimed at researchers, practitioners, and professionals in biomedicine, laser physics and technology, fiber optics, spectroscopy, material science, biology, and medicine, and graduate and undergraduate students studying biomedical physics and engineering, biomedical optics and biophotonics, and medical science.

QP519 9781893997660

Extreme chromatography; faster, hotter, smaller.

Title main entry. Ed. by William Craig Byrdwell and Michal Holcapek.

AOCS Press, ©2011 486 p. \$204.00

Like any other technology, chromatography is a mix of what one might consider 'traditional' mature forms, as in gas and conventional high performance liquid chromatography--and newer developments that expand the field, its capabilities, and applications. And, as in other technologies, the evolution of new techniques and practices inevitably yields successes and failures. The authors here assess the state of the art of chromatography and provide a resource for analytical chemists to help them in their decision making processes. The common thread that runs through the book is one of conditions, instruments, or components that would be thought of as extreme by conventional standards. Topics include: hydrophobic interaction chromatography, high temperature liquid chromatography, multiple parallel mass spectrometry techniques for lipid and vitamin D analysis, and nano-liquid chromatographic separations. Editors William Craig Byrdwell (educator, researcher, author) and Michal Holcapek (University of Pardubice,

Czech Republic, Mass Spectrometry Group Head), and 23 co-authors contributed to this 2011 volume, published by the AOCS Press of the American Oil Chemists' Society.

QP702 9780470874196

Polysaccharide building blocks; a sustainable approach to renewable biomaterials.

Title main entry. Ed. by Youssef Habibi and Lucian A. Lucia.

John Wiley & Sons, ©2012 415 p. \$135.00

Chemists from many countries review the science and engineering of polysaccharide-based renewable biomaterials, which are playing an important role in the emerging biomaterials and bioenergy sciences. Among their topics are cellulosic aerogels, interactions of chitosan with metals for water purification, electrical conductivity and polysaccharides, starch-based sustainable materials, and the potential of xylans as biomaterial resources.

QP752 9780983079118

Edible oleogels; structure and health implications.

Title main entry. Ed. by Alejandro G. Marangoni and Nissim Garti.

AOCS Press, ©2011 342 p. \$174.00

Consuming large amounts of saturated and *trans* fats is a well-documented and publicized health risk for obesity and type II- diabetes. In recent years, *JAOCs* (the *Journal of the American Oil Chemists' Society*) has been featuring research on a novel class of oleogels (aka: organogels) to eliminate these unhealthy fats from our diets by structuring molecules in oils to behave like solid shortenings. Marangoni (food and soft materials science, U. of Guelph, Canada) and Garti (chemistry and applied chemistry, Hebrew U. of Jerusalem) introduce 14 chapters by international scientists who review aspects of this strategy. These include advances in the understanding of self-assembly in non-aqueous systems, and new mesoscale and nanoscale structures, e.g., nanofibers and crystalline particles. The C2011 volume is published by the AOCS Press of the American Oil Chemists' Society.

MEDICINE (PUBLIC ASPECTS)

RA653 9781439857656

Pandemic planning.

Title main entry. Ed. by J. Eric Dietz and David R. Black.

CRC Press, ©2012 295 p. \$79.95

Dietz and Black, both affiliated with the Homeland Security Institute at Purdue University, gather contributors in diverse fields, such as public health, counterterrorism, cyber security, international advocacy, and epidemiology, to offer readers an understanding of the threat of pandemic illness. The book emphasizes the importance of preparedness and planning at the community, state, and regional levels, with guidelines and recommendations provided on conducting and evaluating specific planning

exercises. Contributors summarize current threats of pandemics and how they're related to homeland security, describe the use of computer simulation models for planning, and outline marketing principles for promoting preparedness.

TECHNOLOGY (GENERAL)

T11 9781466602373

Technical writing, presentational skills, and online communication; professional tools and insights.

Greenlaw, Raymond.

Information Science Reference, ©2012 225 p. \$175.00

Greenlaw (computer science, US Naval Academy) offers general advice on writing a manuscript, discusses the ethical standards put forth in the ACM code of ethics and professional conduct, and defines four rules for professional communication. Independent chapters address the idiosyncrasies posed by online writing forums, the structure of a technical paper, the preparation of oral presentations, academic resumes, reports, and the LATEX typesetting system.

T65 9780470467268

An introduction to network modeling and simulation for the practicing engineer.

Burbank, Jack et al. (ComSoc guides to communications technologies)

Wiley-IEEE Press, ©2011 203 p. \$69.95 (pa)

This book is a reference and guide written to help engineers and students identify and fully use the best tools for network modeling and simulation (M&S). While the book concentrates on wireless network M&S, the authors' recommendations are applicable to network M&S overall. They provide guidance on the advantages and disadvantages of M&S and a discussion of typically used M&S tools. Some specific topics include: M&S for RF propagation, medium access control M&S, higher layer protocols, hardware-in-the-loop simulations, and other aspects. Authors are Burbank (chief scientist, The Johns Hopkins U. Applied Physics Laboratory), Kasch (leader, high-assurance networking section, Johns Hopkins Applied Physics Laboratory), and Ward (leader, wireless networking section, Johns Hopkins Applied Physics Laboratory).

T174 9783037853641

Micro-nano technology XIII; proceedings.

Chinese Society of Micro-Nano Technology Conference (13th: 2011: Changchow, China) Ed. by Xiaohao Wang. (Key engineering materials; v.503)

Trans Tech Publications, ©2012 457 p. \$276.00 (pa)

The 81 papers cover the micro/nano transducer/actuator/robot, microfluidic devices and systems, micro/nano fabrication and measurement technologies, microfluidics and nano fluids, nano material research/nanotube/nanowire devices, MEMS/NEMS and applications, nanometer

biological/nano medicine, and packaging technology. Among specific topics are micro-machined electrochemical seismic sensors with interdigital electrodes, a simple method for depositing DNA on the mica, an analytical model of a fluxgate system, analyzing broken wires during gold wire bonding process, and an integrated micro-sensor system to gather meteorological information.

ENGINEERING (GENERAL, CIVIL)

TA168 9781439881408

Systems engineering and architecting; creating formal requirements.

Bellagamba, Laurence.

CRC Press, ©2012 406 p. \$139.95

This book for systems engineers and architects describes a set of formal requirements (presented in Mathematica code) for systems engineering, which can be used to model system or architecture behavior, make rational decisions, establish natural language requirements, and improve systems engineering and architecting processes and products. By using the formal requirements as presented, the book can be used as a text for an introductory course in systems engineering and architecting. The book also can be used for a graduate course that focuses on improving the given formal requirements and developing new ones for other tasks. Familiarity with Mathematica is assumed; for those without this prerequisite, there is an appendix introducing Mathematica. A companion website supplies the formal requirements. Bellagamba was formerly affiliated with Rockwell International and Northrop Grumman.

TA169 9781118007433

Effective FMEAs; achieving safe, reliable, and economical products and processes using failure mode and effects analysis.

Carlson, Carl S. (Wiley series in quality and reliability engineering)

John Wiley & Sons, ©2012 435 p. \$120.00

This is an instructional applications viewpoint of the different types of Failure Mode and Effects Analysis used to anticipate and prevent problems with the end result of lowered costs and trouble free, reliable and safe products and processes. Carlson (Mechanical Engineering, U. of Michigan) uses his considerable knowledge and experience as a co-chair of the industry team that developed the FMEA standard to provide a comprehensive text outlining basics of the concept, how to apply effective FMEAs to reduce common errors, ingredients for excellent FMEA facilitation and best practices for using the FMEA process. Includes examples, detailed case studies, study problems and tips to provide a better understanding of the model and how best to apply it. Types of FMEAs addressed include system, design, process, maintenance, software and many others. Chapters also address fault tree analysis, design review based on failure mode, reliability-centered maintenance, hazard analysis and FMECA (adding a criticality analysis

to to the core FMEA framework).

TA174 9783037853290

Innovating processes.

Title main entry. Ed. by Moussa Karama. (Advanced materials research; v.423) *Trans Tech Publications*, ©2012 220 p. \$138.00 (pa)

This book gathers 18 invited, peer-reviewed papers on the development of new engineering design methods and the science of design methods and design practice. Major themes are uncertainty and risk management in engineering design, simulation of design processes, multidisciplinary optimization, and education for engineering design. Some specific topics include manufacturing defects and tool geometry optimization for multi-material stack drilling, a numerical model to simulate the drop test of a printed circuit board, and dynamic behavior analysis for a six-axis industrial machining robot. Other topics are mechanical modeling of hemp fiber behavior using digital imaging treatment, orthotropic model plates under shear bending, and pareto-optimal solutions for a truss problem. The book includes b&w photos and images. There is no subject index, and information on the editor is not available.

TA401 9783037853740

Advanced research on material engineering and its application; proceedings.

Int'l Conference on Information Science, Automation & Material System (2d: 2012: Changsha, China) Ed. by Helen Zhang and David Jin. (Advanced materials research; v.485) *Trans Tech Publications*, ©2012 630 p. \$207.00 (pa)

About 150 papers explore material science in the context of energy and dynamic systems, pressure control systems and mechanics, and biochemistry and energy engineering. Among specific topics are an efficient gradual release homomorphic timed commitment, modeling and controlling the leaching rate in the nickel stir leaching process of sulfuric acid, clean degree evaluation of coal resources, influencing parameters analysis of solar energy regenerator performance, and the simulation-based optimization of overhang dimensions with architectural materials.

TA401 9783037853658

Advanced structural and functional materials for protection; proceedings.

Int'l Symposium on Advanced Structural and Functional Materials for Protection (2011: Singapore) Ed. by Ma Jan and Santhiagu Ezhilvalavan. (Solid state phenomena; v.185) *Trans Tech Publications*, ©2012 140 p. \$138.00 (pa)

Selected from 120 presentations, the 37 papers consider materials for protecting civilians and soldiers against vehicle collision, blast, fragmentation, and unconventional attack; they also discuss multi-functional materials for enhancing civilian and soldier performance in extreme conditions. The topics include

the atomic-layer deposition of thin inorganic coatings into renewable packaging materials, developing woven enhanced silk fabric for ballistic protection, novel piezoelectric tactile sensor materials with improved properties, enhancing the char resistance of expandable graphite-based intrumescent fire retardant coatings by using multi-wall carbon nano tubes for structural steel, developing new sol-gel surface treatments formulation for the bonded repair of aircraft, and the laminated microstructure and toughness mechanism of abalone shell.

TA401 9783037853511

Management, manufacturing and materials engineering; proceedings; 2v.

International Conference on Management, Manufacturing and Materials Engineering (2011: Zhengzhou, China) Ed. by Liu Pei. (Advanced materials research; vs.452-453) *Trans Tech Publications*, ©2012 1546 p. \$276.00 (pa)

Volume one of the two-volume set from the December 2011 conference reports new material applications in manufacturing and advances in composite materials, system modeling, automation control, and materials science and engineering. The second volume explores inorganic materials, high temperature structural materials, engineering management, optimization analysis, and mechanical properties. Three papers from the Silesian University of Technology model the design of a shock absorber and a spring valve system. Other topics of the 300 plus papers include the influence of moisture content and bulk density on the thermal diffusivity of green teas, a solar light pipe system installed in a gymnasium, a biomechanical robot for medical operations, and stochastic demand vehicle routing. B&w images are provided.

TA401 9783037853313

Multi-scales behaviour of materials.

Title main entry. Ed. by Moussa Karama. (Applied mechanics and materials; v.146) *Trans Tech Publications*, ©2012 230 p. \$138.00 (pa)

This collection of peer reviewed articles on materials science and modeling showcases current scholarship in a wide variety of development and testing research areas. Topics discussed include micro-scale modeling of carbon-fiber reinforced thermoplastic materials, behavior of lightweight concretes, impact and sliding wear resistance of Hadfield and Rail steel, safety and reliability of carbon nanotubes in nanoactuator applications, and the design and finite element modal analysis of composite wind turbine blades. Articles include keywords, abstracts, illustrations, and formulas, and both keyword and author indexes are provided. Contributors are academics and researchers from primarily French institutions.

TA402 9783037853603

Advanced building materials and structural engineering; proceedings.

Int'l Conference on Building Materials and Structural Engineering (2012: Wuhan, China) Ed. by B. Xu and H.Y. Li. (Advanced materials research; v.461)

Trans Tech Publications, ©2012 885 p. \$276.00 (pa)

This collection of articles on construction materials, representing papers delivered at the International Conference on Building Materials and Structural Engineering held in Wuhan, China in March, 2012, showcases current research in wide variety of subject areas relating to cutting edge construction technologies and techniques. Essays are divided into sections covering topics such as advanced material engineering and dynamic systems; building materials, mechanical engineering, and the environment; materials processing technologies and mining engineering; biotechnology, chemical, and materials engineering; and materials science, mechanics and applications. Individual papers include keywords, abstracts, and illustrations. A volume wide author and keyword index is provided. Contributors are academics in engineering and materials science from primarily Chinese institutions.

TA403 9781848213357

Artificial materials.

Vanbésien, Olivier.

ISTE/Wiley, ©2012 346 p. \$175.00

In the field of electromagnetic waves, says Vanbésien (electronics, Lille U., France), artificial material refers to any fabricated device--metallic, dielectric, or metal-dielectric--that enables a varying complex control of wave propagation in a chosen wavelength range. They are approached as either photonic crystals or as metamaterials. He sets out the fundamental concepts, details photonic crystals and/or metamaterials in a regime of band gaps, describes artificial materials in an abnormal refractive regime, and surveys potential applications of the effects illustrated. Among specific topics are transformation optics, routing devices made from photonic crystals, a two-dimensional microwave balanced composite prism, a photonic crystal flat lens at optical wavelength, and antennas.

TA404 9783037853405

Mechanical engineering, materials and energy; proceedings; 2v.

Int'l Conference on Mechanical Engineering, Materials and Energy (2011: Dalian, China) Ed. by Grace Chang. (Applied mechanics and materials; vs.148-149)

Trans Tech Publications, ©2012 1602 p. \$414.00 (pa)

The 330 selected and peer-reviewed papers cover mechatronics and automation, mechanical manufacturing systems, signal processing, manufacturing technology and processing, material science and technology, energy systems, and materials and energy saving. Among specific

topics are isolating and characterizing a sulfanilic acid-degrading bacteria strain, the finite element study of the windage of suspension insulator string under steady wind and gusts, stem characteristics of litchi and the end-effector of a litchi-picking robot, the optimal cleaning schedule of refinery crude preheat trains subject to fouling and aging, a vehicle routing problem with stochastic demands and simultaneous delivery and pickup, the buckling and vibration of carbon nanotubes embedded in polyethylene polymers, a control strategy for the braking system of a hybrid electronic bus, the effect of rare earth salt on ceramic membranes formed by micro-arc oxidation, and the theoretical analysis of meniscus forces between two spherical nanoparticles at various humidities. The two volumes are paged and indexed together.

TA405 9780470689530

Experimental mechanics of solids.

Sciammarella, Cesar A. and Federico M. Sciammarella.

John Wiley & Sons, ©2012 743 p. \$240.00

Two mechanical engineers at Northern Illinois University explain in detail the various possible approaches to analyzing systems and materials using experimental mechanics. They include some historical background for each one, so readers know how the methods came to be what they are. Among the topics are electrical strain gages, optical methods using the interference and diffraction of light, photoelasticity, Moiré contouring applications, and holographic interferometry. The information should be interesting and the treatment accessible to graduate students and researchers in structural and materials engineering.

TA410 9783527410248

Advanced calculations for defects in materials; electronic structure methods.

Title main entry. Ed. by Audrius Alkauskas et al. *Wiley-VCH*, ©2011 384 p. \$175.00

Physicists, materials scientists, and other contributors describe a number of approaches to detecting and characterizing defects in materials now possible because of greater computing power. Among the topics are the accuracy of quantum Monte Carlo methods for point defects in solids, accurate gap levels and their role in the reliability of other calculated defect properties, predicting polaronic defect states by means of generalized Koopmans density functional calculations, a time-dependent density functional study on the excitation spectrum of point defects in semiconductors, and criteria for selecting which electronic structure method to use.

TA417 9781439855881

Ultrasonic nondestructive testing of materials; theoretical foundations.

Langenberg, Karl-Jörg et al.

CRC Press, ©2012 754 p. \$179.95

Physicist Langenberg and electrical engineers René Marklein and Klaus Mayer (all U. of Kassel, Germany) provide a bridge between fundamental elaborations of elastic waves in

solids and emerging applications for ultrasonic non-destructive testing. They set out the physics and mathematics of ultrasound propagation in solids, and demonstrate it on standard non-destructive testing problems. Their topics include governing equations of elastodynamics, electromagnetism, elastic plane waves in homogeneous materials, ultrasonic beams and wave packets, and scatterers in homogeneous isotropic non-dissipative infinite spaces.

TA418 9781439870891

Analytical estimates of structural behavior.

Dym, Clive L. and Harry E. Williams.

CRC Press, ©2012 207 p. \$129.95

The advent of computer-based approaches to structural modeling over the past half century has only accentuated the need for structural engineers to recognize that they are dealing with models of structures rather than the actual structures themselves, contend Dym (engineering design) and Williams (emeritus, engineering, both Harvey Mudd College). They explicitly return the notion of modeling to the analysis of structures by presenting an integrated approach to modeling and estimating structural behavior. The way of thinking about structures and their models that they propose is rooted in classic elementary elasticity, they say, and depends less on advanced mathematical techniques and far more on thinking about the dimensions and magnitudes of the underlying physics. The book could serve as a textbook for a second course in structural analysis for graduates, advanced undergraduates, and practitioners.

TA418 9781420090529

Nanofabrication handbook.

Title main entry. Ed. by Stefano Cabrini and Satoshi Kawata.

CRC Press, ©2012 518 p. \$129.95

Physicists, chemists, and various kinds of engineers explain both standard and new lithographic techniques for fabricating objects at the nanometer scale, and survey applications. Among the topics are focused ion beam and electron beam deposition, soft X-ray lithography, the synthesis and controlled assembly of colloidal inorganic nanocrystals, self-assembly DNA nanostructures and DNA devices, fabricating nanophotonic structures, and patterning magnetic nanostructures with ions.

TA418 9781439827123

Nanosensors; physical, chemical, and biological.

Khanna, Vinod Kumar. (Series in sensors; no. 5)

CRC Press, ©2012 637 p. \$129.95

Khanna (electrical and electronic research, Council of Scientific and Industrial Research, India) gathers and critically appraises research findings reflecting the impact of nanotechnology on sensors. He writes in a question-answer format, and acknowledges the interdisciplinary nature of nanotechnology by assuming no advanced knowledge in any particular field.

Among his topics are materials for nanosensors, the nanosensor laboratory, optical nanosensors, nanobiosensors, and future trends.

TA418 9783527328789

Surface modification of nanotube fillers.

Title main entry. Ed. by Vikas Mittal. (Polymer nano-, micro- and macrocomposites; v.1)

Wiley-VCH, ©2011 316 p. \$155.00

Chemists and engineers of various types review research into methods for modifying the surface of nanotubes that are going to be used as fillers in polymer materials to make them more compatible with the molecules of the particular polymer being filled. Like other fillers, they are used to enhance mechanical, electrical and transport properties of pristine polymers. The topics include modifying carbon nanotubes by layer-by-layer assembly approach, the theoretical analysis of nanotube functionalization and polymer grafting, grafting polymers on nanotubes by atom transfer radical polymerization, and the organic functionalization of nanotubes by dipolar cycloaddition.

TA450 9780470452233

Structural glasses and supercooled liquids; theory, experiment, and applications.

Title main entry. Ed. by Peter G. Wolynes and Vassiliy Lubchenko.

John Wiley & Sons, ©2012 391 p. \$135.00

Chemists and physicists who specialize in glass present a range of modern theoretical and experimental views of the glass transition and relaxations in glassy systems, phenomena that have perplexed scientists, artisans, and artists since ancient times. The topics include a critical assessment of the random first-order transition theory of glasses, the dielectric spectroscopy of glassy dynamics, glassiness in uniformly frustrated systems, dynamics in the crossover region of supercooled liquids, and glassy dynamics of proteins.

TA455 9780727741752

Handbook of geosynthetic engineering; geosynthetics and their applications, 2d ed.

Title main entry. Ed. by Sanjay Kumar Shukla.

ICE Publishing, ©2012 409 p. \$190.00

Synthetic materials are now used routinely in civil engineering, but their nature and application are generally not taught in standard courses, especially at the undergraduate level. This handbook is designed to fill that gap, both for students and for practicing civil engineers, by integrating geosynthetics into the basic geographical principles and processes. Among the topics are soil-geosynthetic interaction, shallow foundations, railway tracks, hydraulic tunnels, and sustainability aspects. The first edition was published in 2002 as *Geosynthetics and Their Applications*.

TA455 9783527329649

Polymers in industry from A-Z; a concise encyclopedia.

Mascia, Leno.

Wiley-VCH, ©2012 350 p. \$135.00

For all the hundreds of books about polymers, says Mascia (materials, Loughborough U., Britain), there remained a need for a compact encyclopedia that provided both specific and general information about plastic materials relevant to manufacturing and other commercial contexts. His main focus is on the constitution, properties, and processing of polymer-based materials, but he also considers such areas as synthesis and characterization. An overview and a search guide introduce the main alphabetic section. There is no index, but the cross-referencing is extensive.

TA462 9781845699499

Corrosion protection and control using nanomaterials.

Title main entry. Ed. by Viswanathan S. Saji and Ronald Cook.

Woodhead Publishing, ©2012 404 p. \$255.00

Saji (advanced materials chemistry, Korea U., South Korea) and Cook, who works in research, assemble 15 chapters that explore the potential use of nanotechnology in corrosion protection and control, for researchers and engineers working with nanomaterials in aerospace, automotive, chemical engineering, and other industries, and academics. Chemists, materials scientists, engineers, and others from the US, Asia, Europe, Australia, and New Zealand detail the fundamentals of corrosion behavior and the manufacture of nanocrystalline materials, the impact of nanotechnology in reducing corrosion cost, and the influence of thermodynamics, kinetics, grain size, and electrochemical influences on the corrosion behavior of nanocrystalline materials, as well as electrodeposited nanostructured materials. They follow with case studies of applications of nanomaterials in corrosion control, such as oxidation protection using nanocrystalline structures at various temperatures, sol-gel and self-healing nanocoatings, and the use of nanoreservoirs and polymer nanocomposites in corrosion control.

TA710 9780415684040

Advances in discontinuous numerical methods and applications in geomechanics and geoen지니어ing; proceedings. (CD-ROM included)

Int'l Conference on Advances in Discontinuous Numerical Methods...(10th: 2011: Honolulu, Hawaii) Ed. by Jian Zhao et al.

CRC Press/Balkema, ©2012 428 p. \$189.00

The conference is held every two or three years, and since the first in 1995 has expanded beyond the initial concern with the discontinuous deformation analysis method to encompass the discontinuous numerical methods and coupling techniques with other numerical approaches for mechanics and engineering in the earth sciences. Among the 56 papers selected for the

proceedings are eight keynotes on such topics as rock block stability analysis of slopes and underground power houses, discontinuum-based micro-mechanics modeling methods, and toward a realistic rock mass numerical model. The other themes addressed are the discontinuous deformation analysis method and applications; key block theory, block cutting, and applications; the numerical manifold method and further developments; distinct element method and applications; and the discontinuous modeling of finite element and other methods. There is no subject index.

TA1530 9781420088380

Fourier modal method and its applications in computational nanophotonics.

Kim, Hwi et al.

CRC Press, ©2012 313 p. \$179.95

Some of the technological limitations on microelectronics and nanoelectronics are being overcome by integrating nanophotonics into the systems, say Kim (Korea U.); Junghyun Park, with a company in South Korea; and Byounggho Lee (Seoul National U.). They provide researchers and graduate students with a detailed mathematical framework for the sound numerical analysis of nanophotonics phenomena, as well as the practical skills and source code required for implementing the Fourier modal method on MATLAB. The Fourier modal method package was developed for educational purposes, they warn, so may sacrifice some factors such as speed, compactness, and memory usage; but once researchers understand the ropes, they can use the source code to optimize in whichever direction they want.

TA1675 9781848213692

Lasers in manufacturing.

Title main entry. Ed. by J. Paulo Davim.

ISTE/Wiley, ©2012 299 p. \$145.00

Contributors identified only by name survey a range of ways that lasers are being used in manufacturing. The examples they discuss are laser rapid manufacturing, lasers in metal forming, the laser forming of metal foams, the mathematical modeling of laser drilling, the thermal stress analysis of laser cutting a small diameter hole, modeling and simulating laser welding, and lasers in surface engineering. The anthology could be a supplemental textbook for a senior undergraduate physics or engineering course, a core text for a graduate course specifically on lasers in manufacturing, or a reference for researchers and practitioners.

TA1750 9789814310901

Optical electronics; self-organized integration and applications.

Yoshimura, Tetsuzo.

Pan Stanford Publishing, ©2012 376 p. \$149.95

Yoshimura (physics, Tokyo U. of Technology) proposes and describes comprehensive strategies for integrating optics into electronic systems with minimized optics excess. The core technologies, he says, are the self-organized optical waveguide based on the self-organized

lightwave network, the three dimensional optical circuit built by stacking optical waveguide films, the material-saving heterogeneous thin-film device integration process, and the high-speed/small-size light modulators and optical switches. The material should interest researchers in optical electronics. Distributed in North America by CRC Press.

MECHANICAL ENGINEERING & MACHINERY

TJ1058 9781439847701

Computational techniques of rotor dynamics with the finite element method.

Vollan, Arne and Louis Komzisk.

CRC Press, ©2012 282 p. \$139.95

Aeronautical engineers Vollan and Komzisk have worked in many companies designing rotors that blow wind or that wind turns, and have cooperated on several projects over the past quarter century. From that collaboration, they explain how to apply modern analysis tools such as finite elements to the rotational behavior of flexible bodies, especially those with irregular shapes like propeller and turbine blades. Covering in turn theoretical aspects and engineering aspects, they examine such topics as coupled solution formulations, the finite element analysis of rotating structures, resonances and instabilities, dynamic response analysis, analyzing aircraft propellers, and analyzing wind turbines.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

TK1541 9781439821794

Wind energy systems; control engineering design.

García-Sanz, Mario and Constantine H. Houppis. CRC Press, ©2012 603 p. \$99.95

García-Sanz (Case-Western U.) and Houppis (emeritus, Air Force Institute of Technology), who both have extensive expertise in major projects in North America and Europe, describe the latest science and technology in wind turbines within the context of what they term a concurrent engineering approach that coordinates the many variables involved. The text includes a link to a free download for the CAD tool they utilize with quantitative feedback theory (QFT) controller design central to their method. QFT and its related forms, including diagonal MIMO QFT, discrete QFT, and non-diagonal QFT, are described in detail in the first third of the book. Wind turbine control and its objectives and strategies, modeling, blade design, experimental results with direct-drive wind turbine TWT-1.65, and smart wind turbine blades are described in separate chapters. The volume concludes with chapters on offshore and airborne wind energy systems.

TK1541 9781439856147

Wind energy systems; solutions for power quality and stabilization.

Ali, Mohd. Hasan.

CRC Press, ©2012 269 p. \$139.95

Ali (U. of Memphis) explores the grid integration problems posed by wind energy conversion systems and presents solutions for minimizing voltage and frequency fluctuations, leveling output power, and enhancing the transient stability of wind power stations. Appropriate for both practicing engineers and students, the book also introduces the components of a typical energy generation system powered by wind and the electric machines, power systems, and power devices commonly used in wind energy generators. The final chapter discusses control strategies for grid and rotor side converters providing power support during grid disturbances. Color photographs and diagrams are provided.

TK3226 9780470889398

Smart grid; fundamentals of design and analysis.

Momoh, James. (IEEE Press series on power engineering; 33)

Wiley-IEEE Press, ©2012 216 p. \$89.95

Momoh (electrical and computer engineering, Howard U.) defines a smart grid as a self-healing electric power network equipped with dynamic optimization techniques that use real-time measurements to minimize network losses, maintain voltage levels, increase reliability, and improve asset management. For professionals and students in electrical and power engineering, he provides a working knowledge of fundamentals, design tools, current research, and critical issues in developing and deploying the smart grid. The information and insights have emerged in the many lectures, conferences, and technical and political debates in the US and elsewhere since the most recent dramatic blackout.

TK5103 9780470936870

Gigabit-capable passive optical networks.

Hood, Dave and Elmar Trojer.

John Wiley & Sons, ©2012 431 p. \$110.00

Hood and Toyjer, both with a network software company, explain one of the technologies for that part of a telecommunications network that connects directly to subscribing endpoints. They write for experienced telecommunications or data communications professionals whose knowledge base does not yet extend into the domain of passive optical networks in general or gigabit-capable or 10-gigabit-capable networks. Rather than just rephrasing the standards, they explain and compare them. They cover system requirements, the optical layer, the transmission convergence layer, management, services, and other technologies.

TK5103 9781439859896

Green mobile devices and networks; energy optimization and scavenging techniques.

Title main entry. Ed. by Hrishikesh Venkataraman and Gabriel-Miro Muntean.

CRC Press, ©2012 383 p. \$89.95

The power of batteries is growing at a much slower rate than the power of other elements of mobile devices, and while many scientists are working feverishly to improve batteries, the computer and electronic engineers focus on energy management in mobile devices and networks, with the idea of meeting the batteries somewhere along the road. Looking in turn at optimization and scavenging techniques, they consider such topics as the energy cost of software applications on portable wireless devices, minimum energy multicriteria relay selection in mobile ad hoc networks, energy optimization techniques for wireless sensor networks, toward modeling support for low-power and harvesting wireless sensors for realistic simulation of intelligent energy-aware middleware, and radio frequency energy harvesting and management for wireless sensor networks.

TK5103 9783527408696

Optical communication with chaotic lasers; applications of nonlinear dynamics and synchronization.

Uchida, Atsushi. Wiley-VCH, ©2012 640 p. \$220.00

Uchida (information and computer sciences, Saitama U., Japan) offers an overview of research into both chaos--nonlinear dynamics--and lasers--photonics--that have engineering applications in optical communication and information technology. The treatment is suitable for graduate students beginning research in interdisciplinary fields, and for researchers and engineers in either chaos or lasers. The topics include the basics of chaos and lasers, analyzing chaotic laser dynamics as demonstrated in a semiconductor laser with optical feedback, synchronization of chaos in lasers, implementing optical communications with chaotic lasers, generating random numbers with chaotic lasers, and controlling chaos in lasers.

TK5103 9781848212381

Stochastic modeling and analysis of telecom networks.

Decreusefond, Laurent and Pascal Moyal.

ISTE/Wiley, ©2012 387 p. \$175.00

Decreusefond (computer science and networking, Télécom Paris Tech) and Moyal (applied mathematics, Compiègne U. of Technology, France) survey some of the purposes that stochastic models can be put to in telecommunications networks, with quantitative as well as qualitative points of view. Considering in turn discrete-time modeling, continuous-time modeling, and spatial modeling, they cover stochastic recursive sequences, Markov chains, stationary queues, the M/GI/1 queue, the Poisson process, the Markov process, systems with delay, loss systems, and spatial point

processes.

ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING

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Stochastic modeling and analysis of telecom networks.

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TK5105 9781466601888

Semi-automatic ontology development; processes and resources.

Title main entry. Ed. by Maria Teresa Pazienza and Armando Stellato.

Information Science Reference, ©2012 326 p. \$175.00

The ten chapters in this collection describe systems for automatic knowledge acquisition and ontology development, methods for reusing existing resources to build ontologies and feed semantic repositories, and specialized tools for ontology development. Researchers at Alcatel-Lucent Bell Labs present patterns for automatically transforming XML schema into RDF and OWL, and contributors from the University of Rome propose probabilistic models for learning ontologies. Other topics include a modular approach to discovering seed ontologies from text, a service-oriented data acquisition framework, reference ontologies for efficient linked open data management, and the extraction of multiword terms from Wikipedia.

TK6553 9781608074709

RFID design principles, 2d ed.

Lehpamer, Harvey. (Integrated microsystems series)

Artech House, ©2012 363 p. \$129.00

Having planned, designed, and deployed wireless and wire-line networks around the world for over 30 years, Lahpamer introduces prospective users and system designers to the basics of radio frequency identification (RFID) technology, including applications, benefits, technical characterizations, security and privacy, and technical and economic challenges of standardization and implementation. The first edition appeared almost four years ago, he says, and the range of applications has grown widely since then. In particular, he

includes medical applications and points out some ethical issues that will have to be faced at some point. Among his topics are short-range communications systems, automatic identification systems, standards development challenges, system design considerations, and sociocultural implications of RFID and their applications.

TK7836 9780470971826

Lead-free solders; materials reliability for electronics.

Title main entry. Ed. by K. N. Subramaniam. (Wiley series in materials for electronic optoelectric applications)

John Wiley & Sons, ©2012 498 p. \$195.00

For 20 years now, environmental concerns have driven the effort to replace leaded solder in microelectronics. Chemical and materials engineers here report on the progress so far, emphasizing the reliability of the new solders. The basic themes are phase diagrams and alloying concepts; microalloying to improve reliability; and chemical, mechanical, whisker-growth, electro-migration, thermo-migration, and miniaturization issues affecting reliability. Among specific topics are phase diagrams and their application in lead-free soldering, developing and characterizing nano-composite solder, microstructural and thermomechanical behavior in lead-free solders, and electro-migration in lead-free solder joints in electronic packaging.

TK7871 9783527326464

Handbook of wafer bonding.

Title main entry. Ed. by Peter Ramm et al.

Wiley-VCH, ©2012 395 p. \$210.00

Electrical engineers offer a reference on wafer bonding to stack components of electronic devices into a third dimension to reduce the size of the device or provide a more desirable shape. They look at the technologies of adhesive and anodic bonding, direct wafer bonding, metal bonding, and hybrid metal/dielectric bonding. They also survey major areas of application. Among the specific topics are polymer adhesive wafer bonding, plasma-activated bonding, wafer-level solid-liquid interdiffusion bonding, temporary bonding to enable three-dimensional integration and packaging, and a thin wafer support system for processing above 250° C and cold de-bonding.

TK7874 9780857095114

Introduction to the physics of nanoelectronics.

Tan, Seng Ghee and Mansoor B.A. Jalil. (Woodhead Publishing in electronic and optical materials; no. 25)

Woodhead Publishing, ©2012 287 p. \$230.00

Tan (Agency for Science, Technology, and Research; Singapore) and Jalil (National U. of Singapore) seek to clarify the term and the field of nanoelectronics by approaching it from the direction of modern applied physics, believing that nanoelectronics should be about discovering and implementing new physics in electronic

devices that are approaching the nanometer scale. They cover physics and mathematics for nanoscale systems, nanoscale physics and electronics, electron dynamics and spin dynamics in nanoelectronic devices, spintronics and spin Hall effects in nanoelectronics, graphene and carbon nanostructures for nanoelectronics, and topology dynamics and gauge potential in nanoelectronics.

TK7876 9783037852736

Advanced materials in microwaves and optics; proceedings.

International Conference on Advanced Materials in Microwaves and Optics (2011: Bangkok, Thailand) Ed. by David Wang. (Key engineering materials; v.500)

Trans Tech Publications, ©2012 859 p. \$276.00 (pa)

One hundred forty-two papers presented at the September 2011 conference explore technologies based on microwave frequency electromagnetic waves, particularly images and algorithms for remote sensing. Three research papers from the China University of Mining and Technology in Beijing improve the positioning accuracy of portables GPS receivers, classify airborne Lidar scan data by echo, and compare methods for detecting forest resource changes. Two papers from Henan University of Technology propose a co-registration algorithm for spotlight SAR interferometry and a RELAX algorithm for spotlight SAR imaging. Other topics include pattern recognition of carbonate rocks in RS images, the synthesis of nanocrystalline anatase by a microwave hydrothermal method, the optical and thermal properties of Asian dust over the ocean, thordon bearings lubricated with seawater, and QoS evaluation for web services composition.

MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS

TL507 9781600868948

Tactical and strategic missile guidance, 6th ed.

Zarchan, Paul. (Progress in astronautics and astronautics; v.239)

Amer. Inst. of Aeronautics & Astronautics, ©2012 1026 p. \$134.95

Intended for experts and novices alike, this dense volume explains the principles of both tactical and strategic missile guidance in a common language and notation, with numerous examples illustrating the guidance laws. The opening section introduces the numerical methods behind proportional navigation homing guidance systems, command guidance systems, booster sizing, flight control design, and ballistic target simulation. MATLAB code is provided. The sixth edition adds six chapters on advanced adjoint applications, differential game guidance, boost-phase filtering options, and control sizing for boost-phase intercept.

TL574 9781118181072

Turbulent drag reduction by surfactant additives.

Li, Feng-Chen et al.

John Wiley & Sons, ©2012 257 p. \$195.00

Engineers from China and Japan review and compile recent research findings on reducing drag in turbulent fluid flow by adding surfactants, a topic of interest not only to basic scientists, but also to utilities, petroleum companies, and other industries that involve fluids moving. They cover drag reduction and heat transfer reduction characteristics of drag-reducing surfactant solution flow, turbulence structures in drag-reducing surfactant solution flow, the numerical simulation of surfactant drag reduction, microstructures and rheological properties of surfactant solution, and application techniques for reducing drag by adding surfactants.

TL589 9781848213234

Flight formation control.

Title main entry. Ed. by José A. Guerrero and Rogelio Lozano.

ISTE/Wiley, ©2012 328 p. \$145.00

Electronic and mechanical engineers, mostly in France and Mexico, explore requirements, challenges, and solutions for formation flying by autonomous or semi-autonomous aircraft or spacecraft. Their topics include theoretical preliminaries, the adaptive and robust controlled synchronization of networked robotics on strongly connected graphs, flight formation control strategies for mini unmanned aerial vehicles, optimal guidance for rotocraft platoon formation flying in wind fields, and optimizing a scannable pattern for bi-dimensional antenna arrays to provide maximum performance.

CHEMICAL TECHNOLOGY

TP156 9780857090157

Laser surface modification of alloys for corrosion and erosion resistance.

Title main entry. Ed. by Chi Tat Kwok. (Woodhead Publishing in materials)

Woodhead Publishing, ©2012 384 p. \$255.00

Lasers have been used to treat the surfaces of metal objects for some three decades, but information about the approach has been scattered across the technical literature of many fields. Chemical, mechanical, industrial, and other engineers compile results, insights, theories, and trends from their various fields on using laser treatment to reduce corrosion, erosion, and cracking. The topics include laser surface melting to repair stress corrosion cracking in weld metal, pulsed laser surface treatment of multilayer gold-nickel-copper coatings to improve the corrosion resistance of components in electronics, liquid impingement erosion resistance, modifying the surface of steel to resist slurry erosion in power plants, and laser surface remelting to improve the erosion-corrosion resistance of nickel-chromium-aluminum-yttrium plasma spray coatings.

TP159 9781439863404

Metal oxide nanostructures as gas sensing devices.

Eranna, G. (Series in sensors)

CRC Press, ©2012 316 p. \$99.95

Eranna (sensor and nanotechnology, Central Electronics Engineering Research Institute, Pilani, India) develops an integrated miniature gas sensor that is compatible with modern semiconductor fabrication facilities so that a small, compact, low-power device can be created that will be useful in analyzing air ambiance with handheld systems. There are presently no specific sensing elements for specific gaseous species, he says, but studies show metal oxide to be sensitive to a group of species, and nanostructures can add their sensitivity to their capabilities. Among his topics are miniaturized solid-state gas sensors, gas-sensing materials and devices, advantages of nanomaterials, nanostructured metal oxides and gas-sensing devices, and active devices based on nanostructures.

MILITARY & NAVAL SCIENCE

U310 9780470874295

Engineering principles of combat modeling and distributed simulation.

Title main entry. Ed. by Andreas Tolk.

John Wiley & Sons, ©2012 888 p. \$135.00

Modelers and simulators 40 years back had not been educated to do what they did. They blazed ahead as pioneers. Now the field has matured, and the 32 contributed chapters presented here set forth the foundations and discuss various specific aspects of combat modeling and distributed simulation. Half the papers are on advanced topics, among them: mathematical applications, high level architecture and base object modeling, Test and Training Enabling Architecture (TENA), using GIS data, modeling tactical data links, and new challenges (human, social, cultural, and behavioral modeling). This is a comprehensive state-of-the-art compendium for researchers and developers involved with military modeling as well as other applications of modeling. Tolk is affiliated with Old Dominion U. and has been involved with the field in numerous capacities.

UG485 9781608075232

Electronic warfare target location methods, 2d ed.

Poisel, Richard A.

Artech House, ©2012 422 p. \$139.00

Writing for technical personnel in engineering or other scientific disciplines who are new to the field of electronic warfare, experienced engineers, and those taking courses on electronic warfare emitter geolocation, Poisel, who was a research engineer at the US Army Research, Development and Engineering Command, Intelligence and Information Directorate, details methods and techniques for geolocating noncooperative targets of interest that are emitting radiofrequency signals. He discusses

the concepts behind triangulation, and quadratic position fixing methods including time difference of arrival, time of arrival, differential Doppler, and range difference methods. He does not cover array-beamforming and the theory of phase interferometry. This edition has new chapters on estimating the fundamental parameters that allow the position fixes to be calculated, the MUSIC (multiple single classification) algorithm and its characteristics, and expanded discussion of single site location technology.

PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY

Z681 9781856047203

Evaluating and measuring the value, use and impact of digital collections.

Title main entry. Ed. by Lorna M. Hughes. *Facet Publishing*, ©2012 181 p. \$115.00 (pa) Researchers and practitioners in the library and information sciences address how to measure the three qualities of digital collections in the context of an expanding mass of digital content with tremendous potential. Among their topics are the digital library, the digital archive, measuring the impact and use for scholarly information-seeking behavior, using information and communication technology methods and tools in arts and humanities research, and improving the sustainability of publicly funded digital resources. In many ways, the essays are a follow-up and companion to *Digitizing Collections: strategic issues for the information manager* (Hughes, 2004). Distributed in the US by Neal-Schuman.

Z711 9781555707712

Leading the reference renaissance; today's ideas for tomorrow's cutting-edge services.

Title main entry. Ed. by Marie L. Radford. *Neal-Schuman*, ©2012 374 p. \$80.00 (pa) The essays collected here, including analysis, literature reviews, and success stories, highlight revolutionary changes in technology and basic conceptualizations of what reference services should be. In Part 1, visionary thinkers reflect on the user experience and the future. In Part 2, contributors examine virtual reference and instruction, evolving service models and staff development, and assessment. Part 3 looks at implementation issues such as extending outreach and collaborative solutions, while Part 4 explores virtual tools. Some specific topics include virtual reference use in older adults, emerging roles for the reference librarian, student-led virtual reference services, roving reference in an academic library, and embracing Wikipedia. Radford teaches at Rutgers, The State University of New Jersey.

ZA4201 9781780526362

Web search engine research.

Title main entry. Ed. by Dirk Lewandowski. (Library and information science) *Emerald Group Publishing*, ©2012 12:00:00 AM. 322 p. \$124.95

This collection of eleven articles on Internet search engine technology showcases current research into the methodologies of search engine mechanics, social and psychological factors in search engine use and trust, and ranking and algorithm science. Topics discussed include comparisons of social search engines, localized web search, evaluating web search retrieval effectiveness, diversity aware search, search engine interfaces and credibility assessments, and test in "truth" claims in search results. Chapters include abstracts, illustrations, and sample equations and algorithms. Contributors are academics in computers science as well as industry professional from leading Internet technology firms. Distributed in North America by Turpin Distribution.

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